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Central Valley Regional Water Quality Control Board

TO: Ms. Jeanine Townsend
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STATE WATER RESOURCES CONTROL BOARD

FROM: 
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CENTRAL VALLEY REGION
REGIONAL WATER QUALITY CONTROL BOARD

DATE: 22 December 2017

SUBJECT: OWN MOTION REVIEW OF WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2012-0116 FOR GROWERS WITHIN THE EASTERN SAN JOAQUIN RIVER WATERSHED THAT ARE MEMBERS OF THE THIRD-PARTY GROUP, CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD: COMMENTS TO SECOND STAFF-PROPOSED ORDER SWRCB/OCC FILES A-2239 (a)-(c)



The Central Valley Water Board (occasionally referred to herein as the “Board”) appreciates the opportunity to submit written comments on the State Water Resources Control Board’s (“State Water Board”) second staff-proposed order reviewing Waste Discharge Requirements General Order No. R5-2012-0116 for Growers within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group (the “Second Draft Order”). The Central Valley Water Board shares the concerns of the State Water Board regarding the water quality impacts from agricultural practices. We have been implementing an aggressive agricultural regulatory program since 2003. Our program has developed and changed since that time based on experience and knowledge gained. We have also experienced significant improvements, advancements and refinements in our regulatory program that have resulted in improved compliance and water quality. The Central Valley Water Board continues to conduct extensive compliance and enforcement activities in our current program that regulates about 30,000 growers throughout the Central Valley. The East San Joaquin Water Quality Coalition¹ is only one of 14 irrigated lands coalitions that we regulate. Changes made to the East San Joaquin Water Quality Coalition will affect our resources and may impact our ability to adequately implement our overall agriculture regulatory program. With this in mind, we submit our comments to the State Water Board.

The Central Valley Water Board sincerely appreciates the many changes made to the first Draft Order in response to our 1 June 2016 comments; however, there remains six major outstanding concerns relating to:

- Changes to the surface receiving water monitoring program

¹ These comments use the term “coalitions” when referring to coalitions generally, and the “Coalition” when referring specifically to the East San Joaquin Water Quality Coalition.

- Implementation of the drinking water well monitoring program
- Application of the A/R metric
- Requirement of Field Level Data
- Lack of acknowledgement of CV-SALTS
- Impacts to Regional Board resources

The following details our concerns and suggested changes in greater detail. To facilitate our comments, we have provided suggested changes to the text of the Second Draft Order and Waste Discharge Requirements General Order No. R5-2012-0116 (the “existing General WDRs”), as contained in Attachments 1 and 2.

I. Executive Summary

The Central Valley Water Board’s Irrigated Lands Regulatory Program (“ILRP”) has evolved over the past 14 years through immense stakeholder input, coordination with federal, state and local agencies, feedback from the agricultural and environmental justice communities, and policy determinations made by the Board itself in numerous public hearings. The ILRP has been continuously subject to refinements and adjustments as water quality improvements have been achieved and as lessons have been learned. We are concerned that the prescriptive nature of the Second Draft Order will prevent the Board from utilizing the latest scientific developments associated with nitrogen loading to groundwater and stifle the innovation that occurs when the agricultural community is allowed flexibility in addressing regulatory limits. Adding some flexibility to allow the Executive Officer or Regional Water Board to establish equivalent alternatives to the prescriptive nature of the Second Draft Order where adequately justified and properly noticed, when needed, would alleviate this concern. As requested by State Water Board members during the 6 December 2017 Workshop, we have included suggested language for the Second Draft Order and existing General WDRs (including both the WDRs and Monitoring Reporting Program) as tracked changes in attachments to this letter.

II. Changes to Surface Receiving Water Monitoring Program

Section II.A.7 of the Second Draft Order raises concerns that data collected under the existing General WDRs’ surface receiving water monitoring program is not “of sufficient density (spatially and temporally) to identify general locations of possible pollution.” The Second Draft Order also states that the representative monitoring approach is not likely to meet the Nonpoint Source Policy’s mandate to “include sufficient feedback mechanisms so that the regional water board, dischargers, and the public can determine whether the program is achieving its stated purpose(s) ...” Finally, the Second Draft Order proposes that the State Water Board convene an expert panel to make recommendations on a framework for surface water monitoring to inform irrigated lands programs statewide.

The Central Valley Water Board does not agree that the monitoring design is insufficient and does not believe that recommendations of an expert panel would be specific enough to inform the concerns expressed regarding the current surface receiving water monitoring program. The use of regional representative monitoring has been upheld by the courts and has been modeled after well-established nonpoint source monitoring programs such as the storm water MS4 programs. Also, the ILRP’s historical success at both identifying water quality issues and identifying management practices that remedy them demonstrates that it is the “sufficient feedback mechanism” that the Nonpoint Source Policy requires, as demonstrated by the water quality improvements associated with more than 180 completed management plans region-wide. The ILRP management plan completions have contributed significantly to the de-listings

of diazinon in reaches of the San Joaquin, Feather and Sacramento Rivers from the CWA Section 303d list of impaired waterbodies. Furthermore, Board staff will be pursuing additional de-listings of diazinon, chlorpyrifos and diuron in reaches of the San Joaquin and Sacramento Rivers, the Sacramento/San Joaquin Delta and their tributaries in response to reduced concentrations of those pesticides in the waterways due in large part to the ILRP management plan efforts. The Central Valley Water Board and State Board have supported delisting of impairments that were a result of ILRP management plans, both for improved water quality and for the recognition that management plans are an appropriate alternative to TMDLs in addressing water quality impairments.

Based on comments and testimony provided by State Board staff, we do not believe State Board fully understands the approach and application of the representative and core monitoring concepts implemented by the Central Valley Water Board. However, if the State Board should proceed with its desire to change the current monitoring program, the Central Valley Water Board requests changes to the text within the Second Draft Order regarding the characterization of the current monitoring program and proposes an alternative approach where the surface water monitoring program for the East San Joaquin Water Quality Coalition would undergo an external audit performed by an independent third party reviewer with the appropriate experience and background. The external audit approach could then be applied to the other 13 coalitions within the Central Valley.

Recommended changes to the Second Draft Order to replace an expert panel with an external audit and to remove and/or revise specific language that could bias such an audit are included in Attachment 1. Specific comments on the State Water Board's Second Draft Order are provided below.

2007 Monitoring Design Guidance

The 2007 Monitoring Design Guidance was developed by members of the ILRP's Technical Issues Committee working together with Central Valley Water Board staff and Dr. Brock Bernstein with the Southern California Coastal Water Research Project. The guidance was developed to help organize monitoring design efforts so that the resulting designs are technically sound and cost-effective, make maximum use of existing knowledge, and balance desired consistency across programs with the flexibility needed to adapt to local circumstances. The guidance is mostly a high-level guidance that provides a framework for developing large scale monitoring programs.

The Second Draft Order states that the Eastern San Joaquin surface water monitoring program strays from the recommended approach of the 2007 Guidance, without describing the basis for these statements. The Central Valley Water Board does not agree with that assessment. The 2007 Guidance was used by the Board and the Coalition in developing the ILRP monitoring program. The 2007 Guidance contains Figures 1-4 to illustrate the key processes and decision-making steps that should be implemented to develop the monitoring program; the ILRP followed these processes.

Source Identification through Upstream Monitoring

The Second Draft Order asserts that a receiving monitoring program should pursue exceedances by conducting follow-up monitoring in upstream channels in order to narrow down the source of exceedances. This strategy was used in an earlier iteration of the ILRP monitoring requirements and was found to be ineffective for many constituents (e.g., pesticides, toxicity). Only constituents that are consistently, repeatedly and predictably present can be addressed with this approach.

Any monitoring strategy for irrigated lands must consider that agricultural discharges are not like traditional point source discharges. Nonpoint, diffuse flows are unpredictable and constituent concentrations change rapidly in surface waters.

Representative Monitoring Approach

The Second Draft Order states that the representative monitoring approach is not adequate because it does not rely on watershed-based sampling, but monitors only a few core sites. The Central Valley Water Board believes that the current representative monitoring approach successfully characterizes water quality conditions and identifies water quality problems at the appropriate spatial and temporal scales. Over time, this approach has produced data sets that have allowed staff to characterize impacts of waste discharges from agriculture. Also, it should be mentioned that in the beginning of the program, the Coalition did a rotating monitoring approach and moved from waterway to waterway with the goal of essentially monitoring numerous reaches. We found this previous approach, while spatially comprehensive; it did not provide long-term trend information and did not effectively consider all the tools available. These tools are pesticide use reporting, consideration crop types, cultural practices, and geophysical information. These tools, when linked with a stable network, allow targeted sampling and reduces the need to sample everywhere. Under the representative framework, we have successfully identified exceedances, required follow-up, and shown success throughout the East San Joaquin Watershed.

The representative approach was designed using the framework recommended for assessment monitoring in the 2007 Monitoring Design Guidance, which states: "Assessment designs will not be able to sample every watershed or discharge point. This requires that two sorts of definitions be addressed in the assessment design. First the area(s) each site is assumed to be representative of must be clearly defined. For example, a site at the bottom of a watershed could represent the upstream drainage area, while a site that samples discharges that stem predominantly from one crop type could represent other areas dominated by that crop." Using this recommendation, the surface water monitoring program for the Coalition relies on a thorough understanding of the hydrology, soil types, rainfall, cropping patterns, cultural practices, and pesticide use within all watersheds of the Coalition area. It is important to think of the monitoring design as an evolving approach, that is adapted over time as science and our understanding of the watershed improves (a framework). To foster this, the Central Valley Water Board has instituted a process and framework, and works with the coalition, local experts, and other interested parties to develop the program. An example of this is the Pesticide Monitoring Protocol (Protocol). This Protocol was developed with Department of Pesticide Regulation, local experts, stakeholders, Board staff, and thorough public input. The Protocol will further increase our efficiencies and moves us into a living approach for considering the multitude of pesticides and breakdown products that may be discharged. Our framework is adaptive, science based, and rooted in stakeholder and public input. An expert panel considering statewide programs will not have the ability to delve in all the details of the comprehensive and locally relevant approach. An overview of the framework is included below.

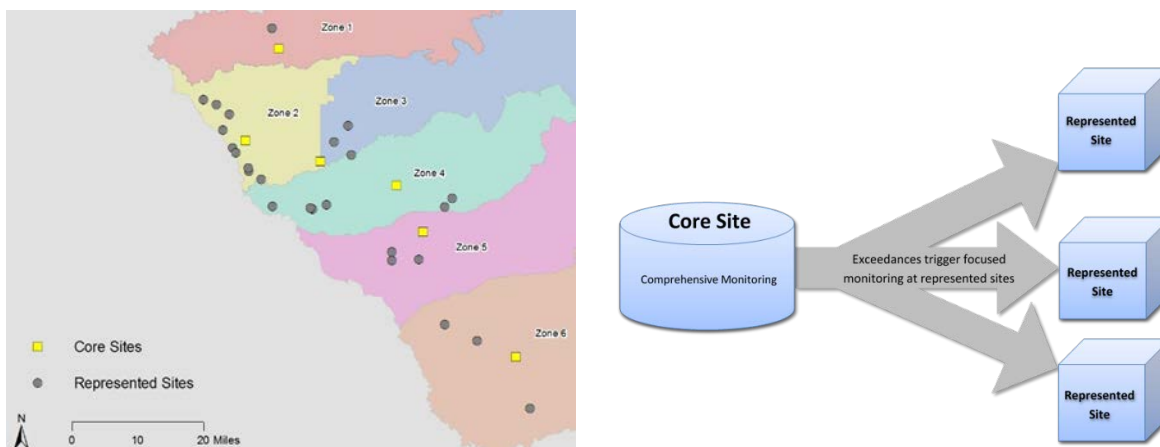
Overview of Eastern San Joaquin Watershed Monitoring Design (see map below)

ZONES: Six geographic zones were identified based on an evaluation of hydrology, soil types, and climate data. Watersheds within each zone have comparable physical and environmental conditions.

CORE SITES: A core monitoring site (Core Site) was designated in each zone. The Core Site monitoring is considered representative of all watersheds in that zone. The

Core Site watershed has similar crop types, crop percentages, pesticide use, and agricultural practices as all other watersheds in the zone.

REPRESENTED SITES: All other watersheds also have a designated monitoring site that is known as a Represented Site. The Represented Site is monitored for constituents of concern that are identified at the Core Site.



Overview of Monitoring Strategy

- Core Sites in each zone are monitored for a comprehensive suite of constituents to determine if agricultural impacts to water quality exist.
 - Monitoring at Core Sites is conducted continuously.
 - Monitoring occurs at Core Sites during months when the constituents are likely to be present.
 - Core Site monitoring results are reviewed and exceedances of water quality trigger limits are identified (referred to as constituents of concern).
 - These core sites provide long-term trend data.
- Represented Sites in each zone are monitored for the constituents of concern identified at the Core Site.
 - Monitoring at the Represented Sites is conducted for at least two years during the months when the constituents are most likely to be present.
 - Represented Site monitoring results are reviewed and exceedances of water quality trigger limits are identified.
- Core and Represented Sites.
 - When two or more exceedances of the water quality trigger limit for a constituent occur at a Core or Represented Site within a three-year period, development of a management plan is triggered for that watershed.

Annual Monitoring Review and Update

- Monitoring data and monitoring plan are submitted annually.
- Monitoring data along with pesticide use and risk information guide monitoring plan.
- Monitoring data and plan are reviewed by staff annually.

- Monitoring plan with justification for constituents to be monitoring and frequency of monitoring is approved by EO annually.

The representative monitoring strategy established by the Central Valley Water Board provides for a more strategically focused monitoring program that allows the Board to evaluate whether discharges from lands associated with agricultural practices have an impact on surface water quality. This is done through implementing a representative-watershed monitoring design approach that was designed in a manner consistent with the 2007 guidance document that was created by a group of monitoring program experts. For diffuse, nonpoint source discharges a watershed monitoring program is highly recommended and will result in the Board obtaining data that can be used to determine if water quality has been impacted. It greatly improves the monitoring programs required by the Board in the earlier years of the irrigated lands regulatory program and enables more timely implementation of agricultural best practices that are protective of water quality.

From comments by State Water Board staff, there seems to be a disagreement on what “representative” monitoring is, and is not. State Board staff have provided comments that “representative” means that if we sample a core site, that a represented site should have the same or very similar water chemistry signal or makeup on a “sample-by-sample” basis. This is not our definition of “representative.” As an illustration, consider water quality data for pesticides, E.coli, or dissolved oxygen. These parameters have been shown over numerous sampling events to be highly variable, even when collected at the same location. Results can yield a detect on one day at a given site, and at the next sampling event they are not detected. Under the State Board staff definition, the example monitoring site would not be “representative” of itself. However, if you step back and consider a long-term data set, you will find a range of values that vary over time, but will provide a range that would be expected (i.e., dissolved oxygen levels in the Deep Water Ship channel over time). When considering numerous data points over time, you can conclude that the example station is representative “sample-by-sample” even though there is considerable variability.

This same consideration must be given for the represented-core site framework. If we sample a core site, then a represented site, just because they are not the same sample-by-sample, it is not reasonable to conclude they are not representative. In fact, all of our physical parameters point to the opposite – they are representative (geophysical, crop types, cultural practices, etc.). What is needed is a consideration of data collected over time, to fully determine how representative these sites are. These data are being collected, but it will take time. A statewide panel cannot look into how best to design a system that will help to further evaluate the representative monitoring sites. However, a local expert review could do so. For these reasons, we request that the State Water Board re-consider its position on our surface water monitoring program.

Spatial and Temporal Density of Monitoring

The Second Draft Order states that the current monitoring and reporting program framework is not of sufficient density (spatially and temporally) to identify general locations of potential pollution. We do not agree. The identified deficiencies are based on a review of the monitoring program at a general level without the benefit of the experience and history that has resulted in the current monitoring strategy. As stated above, the Central Valley Water Board’s irrigated lands regulatory program is in its 14th year of implementation. All components of this program, including the monitoring program, have developed and been refined based on knowledge gained. The current ILRP monitoring program is addressing the spatial and temporal variability of the highest priority surface water constituents through implementation of the November 2016 Pesticide Evaluation Protocol. As discussed earlier, the Protocol was developed with input from

qualified scientists and in coordination with the Department of Pesticide Regulation. It requires coalitions to evaluate pesticide use data on a watershed basis to identify the specific pesticides of concern and then develop the appropriate schedule for monitoring to ensure sampling occurs when the pesticide in use is most likely to be detected in a sample. The Protocol includes a relative risk evaluation based on pounds of pesticide active ingredient applied and toxicity reference values (aquatic life and human health) that have been assigned by the Executive Officer.

Surface Water Successes

The Second Draft Order implies the surface water monitoring is ineffective. We do not agree. From 2003 through 2016, the Coalition collected a total of 1,970 samples from 54 sites and obtained more than 64,800 measurements or analyses from water and sediment samples. As a result of this monitoring approach, 148 active management plans designed to eliminate water quality impairments currently exist in the Coalition region. Since 2003, the representative monitoring program has successfully identified 226 water quality problems (i.e., management plans for 226 unique water body plus pollutant combinations have been triggered) and 88 of those have been completed. Management plans are approved for completion when there have been water quality monitoring data (minimum three years) at the management plan sites demonstrating compliance, documented Coalition outreach to applicable members, documented implementation of management practices, and demonstration of practice effectiveness.

The Coalition's management plan implementation activities include identification of members who may be sources of the water quality problem. Information obtained through pesticide use records, agricultural commissioners, and commodity groups provide a way to target their outreach efforts. On-site farm visits help the Coalition work with their members to identify new practices that will prevent discharge of the identified constituents of concern. Implementation of new practices frequently addresses multiple management plans at the same time (e.g., many sediment-bound pesticides and metals have been addressed simultaneously).

From 2012 to 2017, the Coalition successfully completed 88 of 226 (or 39%) Management Plans. The vast majority of completions were due to demonstration of improved water quality based on analytical results, as well as documentation of outreach and implementation of effective management practices. Specific examples of management plan completion can be found on the ILRP success stories website:

www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/success_stories

III. Implementation of Drinking Water Well Monitoring Requirements

The Second Draft Order includes an additional Member requirement to monitor all on-farm drinking water supply wells for nitrate. In order for Central Valley Water Board staff to ensure that monitoring is being conducted by members as required, they will need to have knowledge of the number and relative locations of water supply wells within the region. Although Senate Bill 83 amended the California Water Code to allow public access to well completion reports, geospatial mapping of the well locations is not currently available at greater than one square mile (section) resolution. In addition, there is an unknown number of water supply wells that are undocumented by Department of Water Resources. Given these circumstances, a significant amount of additional staff resources would be needed to identify water supply wells within the region. As an alternative, the Central Valley Water Board proposes modifications to the Second Draft Order and existing General WDRs (in Attachments 1 and 2) to require members to self-report the drinking water supply wells located on their enrolled parcels. This information would be provided on the Farm Evaluation, which is updated every five years.

In instances where an on-farm drinking water supply well sample exceeds the MCL for Nitrate, the Second Draft Order requires that the Member provide notice to users within 10 days of learning of the exceedance. A clear definition of “notice” is not given. In the interest of consistency, and to ensure that all users are provided appropriate information regarding the risks associated with elevated nitrate levels, the Central Valley Water Board is proposing modifications to the Second Draft Order to require the development of a Drinking Water Notification Template, to be issued by the Executive Officer and provided to members by the Coalition. The Central Valley Water Board anticipates developing the template prior to 2019, with input from environmental justice organizations, coalitions, and other interested parties.

The Central Valley Water Board is additionally proposing slightly edited language in the Monitoring and Reporting Program (in Attachment 2) to acknowledge that not all members own the property being regulated in the ILRP.

IV. Application of A/R Metric

Section II.A.5 of the Second Draft Order addresses the requirements for nitrogen management. The Central Valley Water Board provided proposed language in Attachment 1 within this Section to allow for new scientific developments, to include the California Department of Food and Agriculture (“CDFA”) in the vital task of developing nitrogen removed coefficients, to address the capacity issue associated with grower training and to provide recommendations to support the implementation of this important groundwater protection element. We also made corresponding changes to the existing General WDRs in Attachment 2.

Section II.A.5.b indicates that some growers may be exempted from nitrogen applied/removed reporting based on a demonstration that applied nitrogen is not expected to reach groundwater, over multiple decades, or discharge to surface water. The Central Valley Water Board requests that the text be modified to be consistent with the protection of beneficial uses, and antidegradation requirements for any discharge to groundwater. Essentially, if there is the potential for degradation of groundwater, nitrogen reporting would be required, regardless of how long it takes for the discharge to reach groundwater. We are additionally requesting removal of the required demonstration that applied nitrogen is not expected to discharge to surface water. In the context of the existing General WDRs, nitrogen planning and reporting serves the primary purpose of evaluating potential groundwater impacts. Potential surface water impacts from nitrate in runoff are addressed through the surface water monitoring program and associated Surface Water Quality Management Plans if issues are identified.

Section II.A.5.b also requires certification of irrigation and nitrogen management plans for low vulnerability area growers by 2020. This requirement would almost double the number of growers that would need to either obtain grower training or hire a professional to complete their irrigation and nitrogen management plans. This would cause a very significant strain on the current grower-training program and is a low priority for the Board. Central Valley Water Board recommends that certification of these plans should not be required any earlier than 2023.

Section II.A.5.c requires that the multi-year A/R ratio be the metric for nitrogen management. As discussed by the Salinas growers during the December 6th workshop, there are circumstances when this metric may not be appropriate, due to cropping rotations and other unique agricultural situations. We added language to allow the development of alternative measures that provide an equivalent level of protection in the limited circumstances when the multi-year A/R ratio may not be appropriate.

Section II.A.5.d requires the Coalition to determine nitrogen removed coefficients and for the Board to approve those coefficients. Given their pivotal function in the A/R framework,

coefficients will become points of contention in the adoption of future general orders. Moreover, there is a real possibility of inconsistent coefficients across regions. Even various coalitions may disagree among themselves as to the correct coefficient. If any given coefficient is left open to review and re-litigation with each revision to each general order, an otherwise orderly process will become a logistical nightmare. To avoid these problems, we recommend that coefficients: (1) be made generally-applicable on a statewide basis; and (2) be adopted and periodically reviewed by the State Board—not separately by the regional boards—through a unified administrative process. We also recommend that the CDFA, which has been instrumental in supporting the development of the coefficients, remain closely involved in determination process.

Section II.A.5.e requires an expansion of reporting requirements. We added language clarifying data use by researchers.

Section II.A.5.f indicates that the State Water Board will make changes to the A/R reporting and follow-up approach if sufficient progress is not made. We request that the State Water Board task the Central Valley Water Board with the lead role in developing any potential future changes to the existing General WDRs.

Direction to Central Valley Water Board Regarding A/R Targets

Section II.A.11 of the Second Draft Order requires the Central Valley Water Board to develop, in coordination with the State Water Board and other regional water boards, multi-year A/R target values for each crop within three years of the availability of the nitrogen removed coefficient for that crop, with refinement expected over time for different conditions. Central Valley Water Board staff provided language in the Second Draft Order in Attachment 1 that would allow the use of Board approved tools to assess the potential for nitrogen leaching to groundwater in conjunction with the multi-year A/R ratio. This would recognize tools being developed through the Management Practices Evaluation Program that more site-specifically accounts for management practices and physical characteristics.

V. Field Level Data

Section II.A.3.c of the Second Draft Order provides rationale for requiring individual field-level data on management practices be reported directly to the Central Valley Water Board. The rationale includes the need for the Board to verify the data and analysis prepared by the Third-Party and also ensuring that the Third-Party is appropriately following up with members on potential concerns. The Second Draft Order also provides that field-level data will support Central Valley Water Board analyses to identify effective and ineffective management practices. As discussed in our 2 June 2016 comments, we do not agree that field-level management practice information is needed to carry out the requirements of the California Water Code or Nonpoint Source Policy. Aggregated data, along with GQMP and SQMP reporting is sufficient to track practices, water quality information, and whether additional follow-up is needed. The existing General WDRs specifically provides the Executive Officer the authority to request field-level data where needed and conduct Board follow-up. The existing process effectively targets our resources. The result is a program that has numerous successes in finding and solving water quality problems, compelling additional education, and practice implementation. The proposed field-level reporting is unnecessary.

The Central Valley Water Board has been implementing highly successful agricultural programs for decades. Examples include the Grasslands Bypass Program, Rice Pesticides Program, and the Irrigated Lands Program. None of these programs has stipulated an absolute need for field-level data, but instead have been results oriented. And these results speak for themselves.

The Grasslands Bypass Project has successfully reduced over 90% of the selenium load into the San Joaquin River. The Rice Pesticides Program has resulted in consistent compliance with rice pesticide standards at the Sacramento River sampling location. The Irrigated Lands Program has successfully completed numerous management plans throughout the Central Valley.

None of these programs required the field-level data that the draft petition order proposes. However, should the State Water Board continue to move in this direction, we request that the petition order text clearly indicate that this reporting is specific to the irrigated lands program due to the large-scale, and the Third-Party framework, as reflected in Attachment 1. The proposed text will help to ensure that this broad requirement is not carried into other Water Board programs as a minimum data need, but is recognized to apply in this specific case.

VI. Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS)

Consistent with AB 685, the Board is committed to ensuring that its regulatory programs will not result in any deprivation of safe, clean, affordable, and accessible water because a community's water supply has been adversely impacted by waste discharges that fall under the Board's jurisdiction. The sincerity of this commitment is most evident in the Central Valley Water Board's continued leadership role in the Central Valley Salinity Alternatives for Long-term Sustainability effort, which is the only initiative statewide that is seeking to comprehensively address the consequences of nitrogen over-application.

CV-SALTS has developed and submitted a Salt and Nitrate Management Plan (SNMP) that lays out a blueprint for addressing salt and nitrate impacts throughout the Central Valley. The SNMP has three main goals: ensuring the delivery of safe drinking water to nitrate-impacted communities and groundwater users; balancing salt and nitrate loading to groundwater to mitigate groundwater degradation; and restoring nitrate and salt-impacted groundwater, where such restoration is reasonable and feasible. Achieving these goals while preserving agricultural productivity will require commitments from regulated entities throughout the Valley.

Many in the agricultural community have already begun making these commitments, which is why the SNMP, as proposed by the stakeholder group, would condition the Board's issuance of permits for certain nitrate-intensive activities on the provision of safe drinking water for those dependent on groundwater. This would allow productive agricultural activities to continue in the Valley while long-term collaborative nitrate solutions are pursued. The Basin Plan Amendments would also give municipal and agricultural industries a roadmap for pursuing projects to reduce nitrate loading and to restore nitrate-impacted aquifers where such restoration is practicable. These Basin Plan Amendments, once approved, may change how the Central Valley Water Board regulates agriculture in the near future, requiring changes to WDRs regulating agricultural discharges.

Board staff recommends that the Second Draft Order and WDRs be updated to more fully align salt and nitrate management and the associated protection of drinking water with CV-SALTS, as reflected in the proposed changes in Attachments 1 and 2.

VII. Effect on Central Valley Water Board Staff Resources

The staff resources required to implement the Second Draft Order requirements are substantial.

With the adoption of Resolution R5-2016-0018, the Central Valley Water Board formally acknowledged the human right to water as a core value and a top priority in implementing its various water quality control programs. To that end, the Central Valley Water Board is committed to ensuring users are properly informed of impacted water supply wells where they

are identified. This will likely require staff resources currently dedicated to other compliance and enforcement efforts (e.g., ensuring enrollment, submittal of required reports, etc.) to be re-allocated, as discussed later.

Other elements of the Second Draft Order that are anticipated to have a significant impact on staff resources are the re-evaluation of the surface water monitoring program, development of the multi-year A/R targets, and changes to irrigation and nitrogen planning and reporting. At current staffing levels, work on these items will result in a corresponding reduction in staff time available to conduct other work such as oversight of Surface Water Quality Management Plans, Groundwater Quality Management Plans, and the Management Practice Evaluation Program.

Currently, approximately two personnel years (PYs) of Board staff time are dedicated to implementing the existing General WDRs. We estimate that approximately 3.5 PYs will be needed to implement the Second Draft Order as currently written, while continuing to perform our existing program tasks. This represents a deficit of 1.5 PYs from current staffing levels; therefore, it will be critical for the ILRP to be able to prioritize its activities to maximize the effectiveness of its limited staff.

The revisions proposed by the Central Valley Water Board in Attachments 1 and 2 would not offset the anticipated deficit in staffing. However, they would allow staff to implement aspects of the program in a more efficient manner, and provide more flexibility to the Central Valley Water Board in determining how best to prioritize program implementation.

ILRP Compliance and Enforcement Efforts

In order to implement the new requirements, ILRP staff will have to significantly reduce current compliance and enforcement efforts for the first few years after adoption of the Second Draft Order. To provide an understanding of what activities might be significantly reduced and to address Board member D'Adamo's request for enforcement information during the December 6th Workshop, the following is a summary of the compliance and enforcement efforts conducted in the Coalition since adoption of the existing General WDRs.

In January 2013, the Central Valley Water Board started the second wave of outreach to address non-enrollment within the Coalition area. Staff mailed approximately 5,400 initial letters to land owners within the Coalition area informing them of the need for regulatory coverage under the ILRP. Staff followed up on the initial letters by mailing approximately 2,400 final notices.

After conducting enrollment compliance inspections, we issued approximately 1,200 CWC section 13260 Directive Orders to land owners within the ESJ Coalition's boundary, followed by approximately 380 Notice of Violations (NOVs) to non-responders of the Orders. This resulted in eight Administrative Civil Liability Orders to landowners in the ESJ Coalition's service area for failure to obtain regulatory coverage, with a total liability of about \$260,000.

In response to concerns expressed by small and non-English speaking landowners that they did not understand the ILRP requirements, staff recently developed a plain English reminder letter and tri-fold explaining the ILRP. In 2017, we started mailing reminder letters to inform unenrolled landowners about the regulatory requirements of the ILRP, along with the tri-folds. These letters now serve as a precursor to Orders. In 2017, 250 reminder letters were sent to landowners in the ESJ Coalitions service area, resulting in enrollment of at least 12 additional operations.

Central Valley Water Board staff also conducts enforcement on coalition members who fail to submit required documents required by the WDRs. These documents include Farm Evaluations and Nitrogen Management Plan Summary Reports. Board staff has issued about 250 NOVs to

ESJ Coalition members for failure to submit these documents to the Coalition. Due to recent concerns raised about language barriers and describing legal concepts in “plain English” have resulted in the use of “Reminder Letters”. Board staff has mailed about 100 Reminder Letters to ESJ Coalition members who failed to submit their Nitrogen Management Plan Summary Reports. The members who do not provide their summary reports in response to the reminder letters will receive more progressive enforcement.

Since 2013, Board staff has conducted about 3,300 enrollment verification inspections to assess whether operations are commercial irrigated lands and need coverage under the ILRP. More recently, staff initiated on-farm inspections to assess member compliance with the ILRP WDRs and have conducted about 35 of these inspections in the ESJ Coalition service area.

VIII. Miscellaneous Issues and Requested Revisions

In addition to the foregoing concerns, the Central Valley Water Board also would like to bring the following issues in the Second Draft Order to the State Water Board’s attention, as they bear on the feasibility of implementing the Second Draft Order’s directives:

- ***MPIR Reporting Form.*** The Second Draft Order states that the Member must use a MPIR form unique to each SQMP or GQMP that has been designed by the Third Party and approved by the Executive Officer. It also states that the MPIR shall report management practices implemented by the Member to comply with requirements under the SQMP or GQMP. Creating a unique form for each SQMP or GQMP is problematic for the following reasons:
 - There are hundreds of individual SQMPs and GQMPs. Executive Officer approval of unique MPIR forms for individual management plans is not necessary or reasonable.
 - Many management plans overlap within a given watershed and may be addressed with the same management practices.

Central Valley Water Board staff suggests an alternative approach. Two generic MPIR forms could be developed for SQMPs and GQMPs, respectively, and approved by the Executive Officer. The forms can include spaces for the coalition to fill in relevant information about which management plans are being addressed. The coalition can then send the partially completed MPIR to growers, who then report on practices they have implemented. Specific comments on the ESJ WDRs are included in Attachment 2.

- ***Farm Evaluation Flexibility.*** The Second Draft Order reduces farm evaluation preparation and reporting for high vulnerability areas to once every 5-years. This aligns farm evaluation requirements for both high and low vulnerability areas (e.g., 5-year frequency). For low vulnerability areas, we request that flexibility be provided to the Executive Officer to reduce the frequency provided adequate justification (e.g., cropping patterns and practices are not changing). We request that text be included under the farm evaluation requirements for low vulnerability areas as reflected in Attachment 2.
- ***Central Valley Water Board Reporting.*** The Second Draft Order include requirements for the Central Valley Water Board to annually report to the State Water Board on program progress. We request that the text be modified as shown in Attachment 1 to allow flexibility in years to come regarding this requirement should the State Water Board no longer need annual updates.
- ***INMP and MPIR Reporting.*** The Central Valley Water Board recommends allowing the INMP and MPIR template development and Coalition outreach to occur in 2018 so the

INMP and MPIR reporting would start in March 2019. The language in the existing General WDRs are modified to reflect this recommendation in Attachment 2.

IX. Conclusion

The Central Valley Water Board maintains that the ILRP is a robust, effective, and transparent regulatory program that mandates compliance with all applicable regulatory policies on an aggressive, but reasonable, timeline. For the reasons stated above, the Central Valley Water Board respectfully requests that the State Water Board modify the Second Draft Order and the existing General WDRs, as reflected in Attachments 1 and 2, to address the concerns raised.

Enclosures:

Attachment 1 - Edits to State Water Board's Second Draft Order

Attachment 2 - Edits to WDRs and MRP of General Order No. R5-2012-0116 as revised by Second Draft Order

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[Attachment 1](#)

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2018-

In the Matter of Review of
Waste Discharge Requirements General Order No. R5-2012-0116
for Growers Within the Eastern San Joaquin River Watershed
that are Members of the Third-Party Group

Issued by the
California Regional Water Quality Control Board,
Central Valley Region

SWRCB/OCC FILES A-2239(a)-(c)

BY THE BOARD:

In this order, the State Water Resources Control Board (State Water Board or Board) reviews on its own motion Waste Discharge Requirements (WDRs) General Order No. R5-2012-0116 issued by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) for Growers within the Eastern San Joaquin River Watershed that are Members of a Third-Party Group (hereinafter “Eastern San Joaquin Agricultural General WDRs” or “General WDRs”). The Eastern San Joaquin Agricultural General WDRs authorize discharges from irrigated lands¹ operations to waters of the state within the Eastern San Joaquin River Watershed and set forth a number of requirements for monitoring and planning, for implementation and evaluation of management practices, and for participation in various education and outreach events. For the reasons discussed herein, the State Water Board generally upholds the structure and requirements of the Eastern San Joaquin Agricultural General WDRs, but directs a number of revisions, primarily to add greater specificity and transparency in reporting of management practice implementation, to require reporting of certain nitrogen application-related data needed for management of excess nitrogen use, and to expand the surface water and groundwater quality

¹ Irrigated lands are lands irrigated to produce crops or pasture for commercial purposes, nurseries, and privately and publicly managed wetlands. (Eastern San Joaquin Agricultural General WDRs, Attach. E, Definitions, p.3.)

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monitoring programs of the General WDRs. Many of the revisions to the Eastern San Joaquin Agricultural General WDRs implement the conclusions of an agricultural expert panel that made recommendations to the State Water Board on an appropriate regulatory program for irrigated lands in September 2014 (Agricultural Expert Panel)² while review of the Eastern San Joaquin Agricultural General WDRs was pending before the State Water Board.

I. BACKGROUND

California's agricultural industry produces more than 400 commodities at over 75,000 farms and ranches and is a significant part of the state's economy, providing a large percentage of fruits and vegetables for the nation. Agriculture is especially significant within the Central Valley, where it represents over seven million acres of irrigated lands, approximately one million of which are in the Eastern San Joaquin Watershed. The California grower community has a rich knowledge base of management and business practices, developed over several generations of farming. Because the vast majority of growers plan for the long term, they are naturally motivated to protect natural resources, through stewardship of the land. Over the last few decades, as the impacts of agricultural discharges on water quality have been further studied and understood, growers have collaborated with the regional water quality control boards and the State Water Board (collectively, "water boards"), most commonly through the mechanism of grower coalitions, to find shared solutions to address existing and potential water quality issues. At the same time, the water boards have acknowledged that growers have a legitimate interest in protecting confidential business practices and recognized the need to preserve the tradition of agriculture in California and the ongoing viability of agriculture as an essential driver of the state's economy.

Water quality impacts associated with agriculture are complex and addressing them requires pooling and focusing the knowledge, expertise, and resources of all concerned parties, including growers and their representatives, the regulatory agencies, and the environmental and environmental justice communities. The issues are especially complicated because the same activities that are essential to producing a crucial, reliable food supply – e.g. pesticide use to control pests, nitrogen to fertilize crops, irrigation to water crops – also underlie many of the critical impacts. Pesticide toxicity in surface water threatens the viability of the water

² Conclusions of the Agricultural Expert Panel, Recommendations to the State Water Resources Control Board pertaining to the Irrigated Lands Regulatory Program (Sept. 9, 2014), available at http://www.swrcb.ca.gov/water_issues/programs/agriculture/docs/ILRP_expert_panel_final_report.pdf (as of Oct. 6, 2017) (Agricultural Expert Panel Report). We take official notice of the Agricultural Expert Panel Report. (Cal. Code Reg., tit. 23, § 648.2.)

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bodies to support aquatic and other species. High levels of nitrates found in drinking water supply wells impact public health. Concentrated levels of salt resulting from long-term irrigation adversely affect the quality of groundwater for irrigation, municipal, and other uses. Collectively, we have a responsibility to acknowledge these impacts and address them, but in a manner that preserves the economic viability of agriculture. In some cases, historic agricultural practices have resulted in the impacts we see today. Current practices are also, in some cases, causing impacts and although agricultural practices have generally improved over time, we have an obligation to continue to develop appropriate solutions. This is an ongoing process that requires a thorough understanding of the complex relationship between agricultural practices and water quality impacts gained through collecting and analyzing real-world data and responding to that data with innovations in practices. This data-driven analysis of the issues forms the foundation for fair, even-handed, and reasonable regulation of irrigated lands.

The Central Valley Water Board began engaging the grower community when it adopted its first regulatory program for irrigated lands in 1982. This initial regulatory program, structured as a waiver of waste discharge requirements under Water Code section 13269, conditionally waived the requirement for submittal of a report of waste discharge for irrigation return flow as long as the discharge did not cause toxicity or excess sediment discharges that would violate turbidity objectives. In 2003, in response to revisions to Water Code section 13269,³ the Central Valley Water Board re-examined its original 1982 waiver and significantly changed its regulatory strategy for irrigated lands (2003 Central Valley Agricultural General Waiver).⁴ The 2003 Central Valley Agricultural General Waiver required surface receiving water monitoring of numerous parameters to begin identifying where irrigated lands might be contributing to water quality problems. To take advantage of local knowledge and resources, leverage limited regulatory resources, and minimize costs, the Central Valley Water Board allowed growers to form discharger coalitions, with a third-party representative responsible for grower outreach and education and for implementation of a number of the requirements of the regulatory program, including representative monitoring. In 2006, the Central Valley Water Board modified the 2003 Central Valley Agricultural General Waiver, retaining the third-party structure,

³ There were two relevant amendments to Water Code section 13269. The first amendment required the regional water boards to terminate or extend all existing waivers of WDRs on or before January 1, 2003. Thereafter, waivers of WDRs were not allowed to exceed five years in duration. (See Stats. 1999, ch. 686, § 2.) The second amendment required waivers of WDRs to contain monitoring provisions unless the regional water board determined that the discharge did not pose a significant threat to water quality. (See Stats. 2003, ch. 801, § 1.)

⁴ Central Valley Water Board Resolution R5-2003-0105, Administrative Record (AR) 00001-00012. In addition to the 2003 Central Valley Agricultural General Waiver, Resolution R5-2003-0105 adopted a second conditional waiver for individual dischargers that chose not to join a coalition.

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When the Central Valley Water Board issued the 2006 Central Valley Agricultural General Waiver, the Board committed to preparing an environmental impact report (EIR) pursuant to the California Environmental Quality Act (CEQA) that would comprehensively address discharges of waste from irrigated lands to all waters of the state, both surface water and ground water. The Draft Programmatic EIR was released in July 2010 and the Final Programmatic EIR was certified by the Central Valley Water Board on April 7, 2011.⁶ The Programmatic EIR was challenged by numerous parties, including two of the petitioners in this proceeding. On May 21, 2013, the Sacramento County Superior Court issued a final ruling that rejected the challenges to the Programmatic EIR.⁷ The final ruling was not appealed.

After certification of the Final Programmatic EIR, the Central Valley Water Board began working with a stakeholder advisory workgroup and a groundwater monitoring advisory workgroup to further develop its long-term irrigated lands regulatory program (ILRP). The Central Valley Water Board set out to issue watershed-specific or commodity-specific WDRs instead of one region-wide waiver of WDRs like the 2006 Central Valley Agricultural General Waiver. In April 2012, the Central Valley Water Board issued the first set of draft WDRs for the Eastern San Joaquin River Watershed, conducted several public workshops and multiple meetings with stakeholders and interested parties, and held a hearing in November 2012.

On December 7, 2012, the Central Valley Water Board adopted the Eastern San Joaquin Agricultural General WDRs.⁸ The Eastern San Joaquin Agricultural General WDRs

⁵ Central Valley Water Board Order No. R5-2006-0053, AR 01037-01069. As in 2003, the Central Valley Water Board also adopted a separate conditional waiver for individual dischargers not joining a coalition. (Central Valley Water Board Order No. R5-2003-0054.)

⁶ Central Valley Water Board Resolution No. R5-2011-0017, AR 03720-03721.

⁷ *San Joaquin County Resource Conservation Dist., et al. v. Cal. Regional Water Quality Control Bd., Central Valley Region, et al.* (Super. Ct. Sacramento County, 2013, No. 34-2012-80001186). We take official notice of the final ruling. (Cal. Code Reg., tit. 23, § 648.2.)

⁸ The Central Valley Water Board has since amended the Eastern San Joaquin Agricultural General WDRs five times. We take official notice of the amended versions of the Eastern San Joaquin Agricultural General WDRs. (*Ibid.*) The Central Valley Water Board adopted amendments to the General WDRs on October 3, 2013, on March 27, 2014, on April 17, 2015, on October 2, 2015, and on February 19, 2016. Our references and citations to the Eastern San Joaquin Agricultural General WDRs is to the version effective on October 2, 2015. The amendments on February 19, 2016, are not reflected in this order or its attachments, but those amendments relate only to managed wetlands and irrigated pasture with no external nitrogen inputs and are therefore not affected by our order. The October 2, 2015 version was not submitted as part of the administrative record prepared by the Central Valley Water Board, but is available at http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2012-0116-r3.pdf (as of Oct. 6, 2017). We also note that the October 3, 2013, amendment clarified that any reports approved by or determinations made by the Executive Officer of the Central Valley Water Board in accordance with (*Continued*)

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regulate discharges to groundwater from irrigated lands as well as surface water discharges. The Eastern San Joaquin Agricultural General WDRs carry forward many of the program elements from the 2006 Central Valley Agricultural General Waiver. These elements include allowance of a third party to represent the growers, outreach and education requirements, representative monitoring of receiving waters (as opposed to farm discharge monitoring), annual reporting, requirements to implement and evaluate management practices, and receiving water limitations. The Eastern San Joaquin Agricultural General WDRs add programs for groundwater monitoring and groundwater protection, including implementation of groundwater management plans.

The requirements of the Eastern San Joaquin Agricultural General WDRs are discussed in greater detail in the sections that follow. In brief summary, the General WDRs assign certain requirements to the individual growers (Members) and certain requirements to the coalition (Third Party).⁹ Each Member must meet receiving water limitations (except where the Third Party is implementing a management plan to address known exceedances caused by agricultural discharges), which prohibit the Member from causing or contributing to exceedances of applicable water quality objectives in surface water and groundwater. Each Member must also implement management practices that minimize waste discharge to surface water and groundwater and protect wellheads from surface water intrusion. Each Member is responsible for conducting farm evaluations, which must document the Member's management practices. Each Member is required to prepare and implement a nitrogen management plan that meets the Eastern San Joaquin Agricultural General WDRs' requirement to minimize nutrient application relative to crop need. Members in areas susceptible to erosion must prepare and implement sediment and erosion control plans.

The Third Party, in turn, must conduct education and outreach activities, collect data from Members regarding management practice implementation and nitrogen application and analyze and report aggregated information on such implementation to the Central Valley Water Board. The Third Party is also responsible for maintaining the collected data and submitting the data to the Regional Board upon request. The Third Party must conduct surface water and groundwater quality monitoring. In response to certain triggers, including exceedances of water quality objectives in surface water or groundwater, the Third Party must prepare and submit to the

the terms of the General WDRs are reviewable by the Board itself upon request. (Eastern San Joaquin Agricultural General WDRs, Attach. A, Information Sheet, p.27.) As a result, we do not take up the argument made by Environmental Petitioners regarding improper delegation of certain review and approvals to the Executive Officer.

⁹ Throughout this order, references to the "Third Party" are to the third-party group referenced in the Eastern San Joaquin Agricultural General WDRs; references to a "third party," "third-party group," or "third-party approach/structure" are to agricultural coalitions generally.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

Central Valley Water Board management plans to address water quality issues in a given area and implement those plans in accordance with a specific schedule for implementation of improved or additional management practices and other tasks by Members. The Third Party that has taken on this responsibility under the Eastern San Joaquin Agricultural General WDRs is the East San Joaquin Water Quality Coalition.

The Eastern San Joaquin Agricultural General WDRs assign some of the above requirements based on threat to water quality: regulatory requirements are heightened in higher threat geographic areas (called “high vulnerability areas”), whereas lower threat geographic areas have fewer requirements (called “low vulnerability areas”).

In response to the Central Valley Water Board’s adoption of the Eastern San Joaquin Agricultural General WDRs, three timely petitions for review were filed with the State Water Board by Asociación de Gente Unida por el Agua, et al. (AGUA), by the California Sportfishing Alliance and California Water Impact Network (CSPA), and by San Joaquin County Resource Conservation District, et al. (SJCRCDD) (collectively “Petitioners”). After deeming the petitions complete, consolidating them for review, receiving a response to the petitions and the administrative record from the Central Valley Water Board, and responses to the petitions from interested persons, we adopted Order WQ 2014-0135 on August 5, 2014, taking this matter up on our own motion. We granted own motion review in order to have sufficient time to adequately review the submissions and to allow for completion of a report by the Agricultural Expert Panel (Agricultural Expert Panel Report) prior to making decisions on related issues raised in the petitions.

The Agricultural Expert Panel Report grew out of a legislative effort to address nitrate in groundwater. In 2008, the Legislature added section 83002.5¹⁰ to the Water Code requiring the State Water Board to develop pilot projects focusing on nitrate in groundwater in the Tulare Lake Basin and the Salinas Valley, and to submit a report to the Legislature. In its report, the State Water Board made fifteen recommendations including Recommendation #11, calling for a task force to identify intended outcomes and expected benefits of a nitrogen mass balance tracking system, and Recommendation #14, calling for a panel of experts to assess existing agricultural nitrate control programs and develop recommendations to ensure that ongoing efforts are protective of groundwater quality.

The task force (Nitrogen Tracking Task Force) was convened by the California Department of Food and Agriculture (CDFA), in coordination with the water boards and with

¹⁰ Added by Stats. 2007-2008, 2nd Ex.Sess., ch. 1 (S.B.1), § 6, eff. March 1, 2009.

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participation by stakeholders and experts from agricultural organizations, academia, and the environmental advocacy community. The Nitrogen Tracking Task Force issued its final report in December of 2013. The report made recommendations on the appropriate components of an effective nitrogen tracking and reporting system, including data elements that should be tracked and reported.¹¹ We consider those recommendations in this order.

The panel of experts (Agricultural Expert Panel) was convened by the State Water Board, in coordination with CDFA, and considered all existing studies, programs, and efforts for agricultural nitrate control, including the recommendations of the Nitrogen Tracking Task Force.

On September 24, 2013, concurrent with the proceedings of the Nitrogen Tracking Task Force, but prior to convening the Agricultural Expert Panel, the State Water Board adopted Order WQ 2013-0101, reviewing the Central Coast Regional Water Board's (Central Coast Water Board) waiver of WDRs for irrigated lands (Central Coast Agricultural Order). We stated in that order that many of our conclusions represented an interim approach to regulation of agriculture, pending further consideration by the Agricultural Expert Panel. As we laid out in Order WQ 2013-0101, we referred a number of additional questions regarding the development of an appropriate agricultural regulatory program to the Agricultural Expert Panel for consideration, primarily questions specific to agricultural nitrate control programs, but also questions regarding appropriate risk or vulnerability determinations for purposes of tiering requirements and regarding effective surface water monitoring.¹² Many of these questions are relevant to the current proceedings.

¹¹ The Nitrogen Tracking Task Force's final report is available at <<https://www.cdfa.ca.gov/environmentalstewardship/PDFs/NTRSTFFinalReport122013.pdf>> (as of Oct. 6, 2017) (Nitrogen Tracking and Reporting Task Force, Final Report (Dec. 2013)) (Nitrogen Tracking Task Force Report). We take official notice of the Nitrogen Tracking Task Force Report. (Cal. Code Reg., tit. 23, § 648.2.)

¹² The following questions were posed to the Agricultural Expert Panel: "1. How can risk to or vulnerability of groundwater best be determined in the context of a regulatory program such as the Irrigated Lands Regulatory Program (ILRP)? 2. Evaluate and develop recommendations for the current approaches taken to assessing risk to or vulnerability of groundwater. 3. How can risk to or vulnerability of surface water best be determined in the context of a regulatory program such as the ILRP? 4. Evaluate and develop recommendations for the current approaches taken to assessing risk to or vulnerability of surface water. 5. What management practices are expected to be implemented and under what circumstances for the control of nitrogen? 6. What management practices are recommended for consideration by growers when they are selecting practices to put in place for the control of nitrogen? 7. Evaluate and make recommendations regarding the usage of various nitrogen management and accounting practices. 8. Evaluate and make recommendations regarding the most effective methods for ensuring growers have the knowledge required for effectively implementing recommended management practices. 9. What measurements can be used to verify that the implementations of management practices for nitrogen are as effective as possible? 10. Evaluate and make recommendations regarding the usage of various verification measurements of nitrogen control. 11. Evaluate the relative merits, and make recommendations regarding the usage of, surface water measurement systems derived from either receiving water or a discharge monitoring approach to identify problem discharges. 12. Evaluate and make recommendations on how best to integrate the results of the Nitrogen Tracking and Reporting System Task Force with any above recommendation regarding management practices and verification measures. 13. Evaluate and make recommendations on the reporting requirements to report budgeting and recording of nitrogen application on a management block basis versus reporting aggregated numbers on a nitrate loading risk unit level." (Continued)

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The Agricultural Expert Panel held multiple public meetings over a six-month period in Tulare, San Luis Obispo, and Sacramento, to consider the questions posed by the State Water Board. The Agricultural Expert Panel consisted of eight members with various areas of specialization including: an irrigation specialist/agricultural engineer, a soil scientist, a hydrogeologist, an agronomist, a certified crop advisor, a University of California Cooperative Extension farm advisor, a Central Coast grower, and a Central Valley grower. The Agricultural Expert Panel released a draft report in July 2014 considering and answering the questions posed, took written public comment on the draft report, and issued the Agricultural Expert Panel Report on September 9, 2014. The Agricultural Expert Panel Report was presented to us on September 23, 2014, and made a number of recommendations for the regulation of irrigated lands.¹³ In this order, we consider and incorporate a number of those recommendations.

Many of the findings and directions of this order are appropriate not only for the Eastern San Joaquin Agricultural General WDRs, but also for the next-subsequent generations of regional water quality control board (regional water board) agricultural regulatory programs statewide.¹⁴ In the sections that follow, we indicate which of our conclusions are precedential and guide irrigated lands programs statewide.¹⁵ Our conclusions are intended to guide irrigated lands programs that directly regulate growers without a third-party intermediary, in addition to third-party based programs, except where specifically noted.

The specific recommendations made by the Agricultural Expert Panel and endorsed by us in this order are discussed under the appropriate topics in the next section.¹⁶

(Agricultural Expert Panel Report, p. i.) Upon request from the Agricultural Expert Panel, the State Water Board provided additional clarification on several of the questions. (See Agricultural Expert Panel Report, Appen. C.)

¹³ The Agricultural Expert Panel proceedings are detailed at http://www.swrcb.ca.gov/water_issues/programs/agriculture/ (as of Oct. 6, 2017). In addition to the Agricultural Expert Panel Report, we take official notice of the proceedings of the Agricultural Expert Panel. (Cal. Code Reg., tit. 23, § 648.2.)

¹⁴ Although this Order will require the comprehensive revision of waste discharge requirements and conditional waivers to implement the precedential mandates of this Order, the State Water Board acknowledges that interim revisions to effectuate regulatory proposals that have recently been approved or that are currently under development may be appropriate before comprehensive revisions are considered. Such interim revisions could include the Central Valley Water Board's revision of agricultural waste discharge requirements to incorporate requirements to implement early actions for salt and nitrates consistent with the CV-SALTS regulatory process. These early actions, as they are currently being contemplated, would require the provision of drinking water to certain affected communities and the dischargers' participation in long-term salinity studies, and it is not the intent of the State Water Board to interfere in the expeditious rollout of such programs.

¹⁵ Generally, State Water Board petition orders are precedential unless otherwise designated. (State Board Order WR 96-1 (Lagunitas Creek), at fn. 11.) Here, because of the significant variation in agricultural practices statewide, automatic application of all requirements endorsed in this Order to all of the agricultural discharge programs statewide is inappropriate.

¹⁶ In reviewing the Eastern San Joaquin Agricultural General WDRs, we also take into account some of our precedential determinations in State Water Board Order WQ 2013-0101. While the Central Coast Water Board's (Continued)

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II. ISSUES AND FINDINGS

The three petitions raise a number of issues concerning the Central Valley Water Board's adoption of the Eastern San Joaquin Agricultural General WDRs. To the extent petitioners raise issues that are not discussed in this order, either in whole or in part, such issues are dismissed as not raising substantial issues appropriate for our review.¹⁷

In particular, although we have carefully reviewed the petition filed by SJCRCD, we have not taken up the issues raised in that petition, primarily because the issues have already been resolved through a court ruling and through our precedential order WQ 2013-0101 issued since SJCRCD filed its petition. The majority of SJCRCD's arguments relate to the CEQA documents supporting the General WDRs and some of those arguments were resolved by the Superior Court's May 21, 2013, ruling upholding the Programmatic EIR.¹⁸ SJCRCD noted in its petition that its CEQA challenges related to the EIR were already properly pending in the litigation challenging the Programmatic EIR and were only being repeated in the petition in the event that any party or a court disagreed.¹⁹ We agree with SJCRCD that it properly raised those issues in the litigation, and we do not address them again here. SJCRCD also argues that the Central Valley Water Board was required under Water Code 13141 to incorporate an economic analysis on the costs to agriculture of the General WDRs into the relevant water quality control plans. We resolved that question in Order WQ-2013-0101 by finding that section 13141 only applies to an agricultural water quality control program that is adopted within a water quality control plan, not through a permitting action, like the Eastern San Joaquin Agricultural General WDRs.²⁰ Nevertheless, it is important for the regional water boards to consider costs when adopting

approach to regulating irrigated lands has significant differences when compared to the Central Valley Water Board's approach, there are a number of overlapping issues raised by both sets of petitions for review. However, State Water Board Order WQ 2013-0101 is the subject of current litigation. On September 30, 2015, the County of Sacramento Superior Court issued a judgment and peremptory writ of mandate compelling the State Water Board to set aside Order WQ 2013-0101 and reconsider the Central Coast Agricultural Order. The judgment and writ issued in accordance with a Ruling on Submitted Matter, dated August 10, 2015 (*Monterey Coastkeeper et al. v. State Water Resources Control Bd.* (Super Ct. Sacramento County, 2015, No. 34-2012-80001324) (Sacramento Superior Court Ruling) in which the court considered a number of the issues decided in Order WQ-2013-0101. Our appeal of the judgment and writ is currently pending. (*Monterey Coastkeeper et al. v. State Water Resources Control Bd.*, app. pending.) Accordingly, we reference our findings and conclusions in Order WQ-2013-0101 in this order only where those findings and conclusions have not been specifically called into question by the Sacramento Superior Court Ruling. We also discuss and reference conclusions of the Sacramento Superior Court Ruling where relevant.

¹⁷ *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177; *Johnson v. State Water Resources Control Bd.* (2004) 123 Cal.App.4th 1107, 1114; Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).

¹⁸ *San Joaquin County Resource Conservation Dist.*, *supra* (Super. Ct. Sacramento County, 2013, No. 34-2012-80001186).

¹⁹ SJCRCD Petition, page 2.

²⁰ State Water Board Order WQ 2013-0101, p. 16.

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irrigated lands regulatory programs.²¹ In this case, the Central Valley Water Board incorporated an analysis of costs in the information sheet.²² We also note that the Central Valley Water Board's Water Quality Control Plan for the Sacramento and San Joaquin River Basins includes an estimate of potential costs and sources of financing for the Central Valley Water Board's long-term irrigated lands program at pages IV.38-IV.39.²³

We have taken up some of the issues raised by AGUA and CSPA. Because the issues raised by AGUA and CSPA are generally related and appropriate for consideration together, we refer hereinafter to arguments raised by AGUA and CSPA jointly as raised by the "Environmental Petitioners."

We have organized our discussion in this order to correspond to the different categories of requirements set up in the Eastern San Joaquin Agricultural General WDRs. We address the Environmental Petitioners' arguments as well as related recommendations of the Agricultural Expert Panel Report (and, where applicable, the Nitrogen Tracking Task Force Report) under each category.

The Eastern San Joaquin Agricultural General WDRs were issued under authority of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), specifically Water Code sections 13263 and 13267. Among other mandates, section 13263 requires the Central Valley Water Board to set waste discharge requirements that implement relevant water quality control plans.²⁴ The Eastern San Joaquin Agricultural General WDRs must primarily implement the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan)²⁵ which sets the beneficial uses of the surface water bodies and groundwater in the region and sets water quality objectives to be achieved in those waters. The Eastern San Joaquin Agricultural

²¹ Under Water Code 13263 and 13241, "economic considerations" is one of the factors a regional water board must take into account in issuing waste discharge requirements. Additionally, section 13267 requires the regional water board to ensure that "the burden, including costs, of [monitoring] reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."

²² Eastern San Joaquin Agricultural General WDRs, Attach. A, pp. 44-48. The analysis is based on an economic study conducted for the Central Valley Water Board in support of its long-term irrigated lands program for the region. (AR 31796- 32232.)

²³ See Eastern San Joaquin Agricultural General WDRs, finding 37, pp. 10-11. SJCRCD also argues that the General WDRs improperly treat crop irrigation water as a discharge of waste. To the contrary, the General WDRs specifically state that "irrigation water, the act of irrigating cropland, and the discharge of irrigation water unto itself is not 'waste' as defined by the Water Code, but . . . irrigation water may contain constituents that are considered to be 'waste' as defined by Water Code section 13050(d)." (*Id.*, p. 1, fn. 1.)

²⁴ Wat. Code, §13263, subd. (a).

²⁵ Available at <http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf> (as of Oct. 6, 2017), AR 33039-33339. In addition, the Eastern San Joaquin Agricultural General WDRs must implement applicable statewide water quality control plans.

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General WDRs must also conform to State Water Board policies.²⁶ Of relevance here are our Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program²⁷ (Nonpoint Source Policy) and our Statement of Policy with Respect to Maintaining High Quality Waters, State Water Board Resolution No. 68-16²⁸ (Antidegradation Policy). Water Code section 13267 grants the Central Valley Water Board authority to require monitoring and reporting as a component of the Eastern San Joaquin Agricultural General WDRs. The Nonpoint Source Policy additionally directs that any nonpoint source program incorporate monitoring and reporting requirements.

We begin our review of the petitions in Section A with consideration of the Eastern San Joaquin Agricultural General WDRs' consistency with the Water Code in light of the direction provided in the Nonpoint Source Policy as to how to effectuate Water Code requirements in the context of control of nonpoint source discharges. We focus in particular on the Nonpoint Source Policy's direction to require management practices with a high likelihood of leading to attainment of water quality requirements and direction to incorporate sufficient feedback mechanisms to determine if, in fact, the program is meeting its stated purposes. Some of the arguments raised by Environmental Petitioners under the umbrella of compliance with the Antidegradation Policy concern the mandates under that policy for discharges not to unreasonably affect beneficial uses, not to result in water quality less than the quality specified by water quality objectives, and not cause a pollution or nuisance; these arguments are more appropriately considered under compliance with the Water Code and Nonpoint Source Policy and are addressed in Section A. In Section B, we separately consider the Eastern San Joaquin Agricultural General WDRs' compliance with the Antidegradation Policy's mandate to maintain high quality waters except as allowed under the Policy.

A. Compliance with the Water Code and the Nonpoint Source Policy

Agricultural discharges, including both irrigation water and storm water running off of agricultural fields into surface waters or percolating to groundwater, may carry constituents considered to be waste as defined under Water Code section 13050(d).²⁹ Water Code section

²⁶ Wat. Code, §13146.

²⁷ Available at <http://www.waterboards.ca.gov/water_issues/programs/nps/docs/plans_policies/nps_iepolicy.pdf> (as of Oct. 6, 2017), AR 36138-36157.

²⁸ Available at <http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf> (as of Oct. 6, 2017), AR 35945-35946.

²⁹ "'Waste' includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes, of disposal." (Wat. Code, §13050, subd. (b).)

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

13260 requires persons “discharging waste, or proposing to discharge waste . . . that could affect the quality of the waters of the state” to file a report of waste discharge. Water Code section 13263 in turn directs a regional water board to prescribe requirements for the discharge that “implement any relevant water quality control plans that have been adopted, and that . . . take into consideration beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, and the need to prevent nuisance,” as well as certain additional factors, including economic considerations.³⁰ A regional water board may prescribe general waste discharge requirements to a category of discharges, such as agricultural discharges, rather than issue individual waste discharge requirements to separate operations.³¹

While waste discharge requirements require compliance with the water quality objectives specified in the water quality control plans, such compliance need not be achieved immediately. A time schedule for compliance with water quality requirements is explicitly permitted by Water Code section 13263, which states that WDRs “may contain a time schedule subject to revision in the discretion of the [regional water] board.”³² Further, consistent with Water Code section 13263’s requirement to consider the water quality objectives “reasonably required” to protect beneficial uses, a regional water board has some discretion to determine where and how compliance with a water quality objective must be demonstrated. It is not always necessary for the reasonable protection of beneficial uses that each water quality objective be met at each discrete point in time and space. For example, in determining compliance with water quality objectives in groundwater to protect drinking water beneficial uses, the regional water board may take into consideration the fact that many groundwater wells are screened so that they extract groundwater from multiple aquifer levels. Because the different aquifer levels are recharged from different areas over different time intervals, different aquifer levels will have different concentrations of pollutants. Thus, many groundwater wells necessarily induce some mixing of

³⁰ In issuing waste discharge requirements, the Water Code requires the Central Valley Water Board to take the factors listed in Water Code section 13241 into consideration, including, but not limited to, “(a) past, present, and probable future beneficial uses of water; (b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto; (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area; (d) Economic considerations; (e) The need for developing housing within the region; (f) The need to develop and use recycled water.” See *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613. As we have already discussed above, the Central Valley Water Board included a thorough discussion of economic considerations in an economic study conducted in support of its long-term irrigated lands program for the region (AR 31796- 32232) and at pages 44 through 48 of Attachment A to the Eastern San Joaquin Agricultural General WDRs. While petitioners complained generally about the breadth of the economic analysis, the record does not establish that the costs of complying with the requirements contained in the Eastern San Joaquin Agricultural General WDRs, including the additional costs to comply with the requirements added by this order, warrant relaxation of those requirements.

³¹ Wat. Code, §13263, subd. (i).

³² Wat. Code, §13263, subd. (c).

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

the groundwater they extract. Similarly, the regional water board may determine appropriate averaging periods for surface waters, or rely on monitoring for general surface water quality compliance at a point downstream of multiple discharge points, rather than at each and every discharge point.³³

The State Water Board also understands that considerations regarding mixing, averaging periods, time schedules, and the implementation of cooperative monitoring and compliance strategies are currently being considered as part of the Central Valley Water Board's effort to address salt and nitrate impacts through the Central Valley Salinity Alternatives for Long-Term Sustainability Initiative (CV-SALTS). This initiative, which is in the final phases of development, will establish a Central Valley-wide salt and nitrate control program based on recommendations from the CV-SALTS-developed Salt and Nitrate Management Plan (SNMP). To implement the SNMP, the Central Valley Water Board is considering amendments to the to the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and the Tulare Lake Basin. These amendments, as currently contemplated, would incorporate new implementation plans, strategies, policies and guidance into the Basin Plan, and thus have the potential to significantly affect the Eastern San Joaquin Agricultural General WDRs. The regulatory process for amending the Basin Plans is well underway, with the amendments schedules for final consideration in mid-2018.

The Nonpoint Source Policy further guides our interpretation and implementation of Water Code requirements, including Water Code sections 13263 and 13267, in the context of regulating nonpoint source discharges to achieve compliance under the strategies and implementation provisions in the Basin Plan, including those contemplated by the regional board pursuant to the CV-SALTS initiative. Nonpoint source discharges, such as irrigated lands discharges, pose unique challenges that are not easily addressed by strategies designed to address point source pollution. The Nonpoint Source Policy explains that nonpoint source

³³ ~~It is important for us to note that the Eastern San Joaquin Agricultural General WDRs regulate current discharges that may be causing or contributing to exceedances of the limitations imposed under the Water Code. Where water bodies already have pollutant levels detrimental to beneficial uses due to historic discharges, the regional water board may rely on other authority, including but not limited to the authority to require cleanup and abatement under Water Code 13304, to address the issue. The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative, a collaborative, stakeholder process initiated by the Central Valley Water Board, is currently studying and developing alternatives to address existing groundwater salinity problems in the Central Valley. We cautiously endorse this approach, with the expectation that it will eventually bear fruit. We will, of course, be paying close attention to these efforts and other efforts to manage existing groundwater quality and quantity problems, including the substantial work required under the Sustainable Groundwater Management Act of 2014. (Wat. Code, § 10720, et seq.) In the meantime, we will continue to work diligently with communities, especially disadvantaged communities that are disproportionately impacted by poor drinking water supplies, to find appropriate solutions. We have focused many of our grant and loan programs to provide them with needed assistance while longer term approaches continue to evolve.~~

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

discharges typically occur as a result of contact between pollutants and land runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification.³⁴ Nonpoint sources are thus diffuse and are most effectively addressed by control of the sources of pollution, typically with implementation of management practices, rather than by attempts to treat the discharge at the multiple, and often indeterminate, number of discharge points. The Nonpoint Source Policy further recognizes that, “given the extent and diversity” of nonpoint source discharges, the regional water boards must be creative and efficient in addressing nonpoint source pollution and may rely on third-party programs that are effective in reaching a large number of dischargers.³⁵

The Nonpoint Source Policy requires that any nonpoint source pollution control implementation program, including one primarily administered by a third-party group, incorporate several key elements.³⁶ Key Element 1 states as follows:³⁷

1. A nonpoint source control implementation program’s ultimate purpose shall be explicitly stated. Implementation programs must, at a minimum, address nonpoint source pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements.³⁸

In compliance with Water Code section 13263 and with Key Element 1, the Eastern San Joaquin Agricultural General WDRs set out their ultimate purpose by establishing water quality requirements in Section III. Receiving Water Limitations:

A. Surface Water Limitations

1. Wastes discharged from Member operations shall not cause or contribute to an exceedance of applicable water quality objectives in surface water, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance.

B. Groundwater Limitations

1. Wastes discharged from Member operations shall not cause or contribute to an exceedance of applicable water quality objectives in the underlying groundwater, unreasonably affect applicable

³⁴ Nonpoint Source Policy, p. 7, AR 36146.

³⁵ *Id.*, p. 9, AR 36148.

³⁶ The Nonpoint Source Policy uses several acronyms that we have spelled out in this order. These include “NPS” for “nonpoint source,” “MP” for “management practice,” “SWRCB” for “State Water Board,” and “RWQCB” for “regional water board.”

³⁷ The Nonpoint Source Policy establishes five key elements. Four are discussed here. The fifth key element (“Each regional water board shall make clear, in advance, the potential consequences for failure to achieve a nonpoint source control implementation program’s stated purposes” (Nonpoint Source Policy, pp. 14-15, AR 36153-36154)) is not addressed because no party has raised it as an issue in the proceedings.

³⁸ *Id.*, pp. 11-12, AR 36150-36151. Key Element 1 is inclusive of antidegradation requirements. As previously stated, we discuss the Eastern San Joaquin Agricultural General WDRs’ compliance with antidegradation requirements separately in section II.B.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

beneficial uses, or cause or contribute to a condition of pollution or nuisance.

The General WDRs state that these receiving water limitations are effective immediately except where Members are implementing an approved Surface Water Quality Management Plan (SQMP) or Groundwater Quality Management Plan (GQMP), with an approved timeline, as authorized by the General WDRs.³⁹ The SQMP and GQMP requirements are discussed in greater detail below; a primary purpose of the SQMP and GQMP provisions is to address water quality problems in areas where exceedances of water quality objectives have been detected. The Order allows Members that are part of the SQMP or GQMP plan area up to ten years for compliance with the Receiving Water Limitations.⁴⁰ This allowance does not run counter to the Water Code or the Nonpoint Source Policy. As we already stated, a time schedule for compliance with water quality requirements is explicitly permitted by the Water Code. Further, Key Element 3 of the Nonpoint Source Policy states that, where a regional water board finds that it is necessary to allow time for achievement of water quality requirements, an order implementing a nonpoint source program shall specify a time schedule and quantifiable milestones designed to measure progress toward achieving the water quality requirements.⁴¹ Although a time schedule allowed in WDRs must not be any longer than necessary,⁴² the Eastern San Joaquin Agricultural General WDRs comply with the Nonpoint Source Policy by setting ten years as the maximum time permitted for a time schedule and requiring the Third Party to propose a schedule that is “as short as practicable” and is supported by technical or economic justification as to why it is as short as practicable.⁴³ The General WDRs require the SQMP or GQMP to incorporate a specific schedule and milestones for the implementation of management practices and tasks and measurable performance goals.⁴⁴ Thus the General WDRs’ receiving water limitations are consistent with the Water Code and the Nonpoint Source Policy.⁴⁵

³⁹ Eastern San Joaquin Agricultural General WDRs, § III, fns. 15-16, p. 17.

⁴⁰ *Id.*, § XII, p. 37.

⁴¹ Nonpoint Source Policy, p.13, AR 36152.

⁴² Cal. Code of Regs, tit. 23, §2231.

⁴³ Eastern San Joaquin Agricultural General WDRs, § XII, p. 37. The provisions allow the Central Valley Water Board to modify approved schedules where evidence is presented that the compliance date is technically or economically infeasible or where evidence shows that an earlier compliance date is feasible. (*Ibid.*)

⁴⁴ *Id.*, Attach. B., MRP, Appen. MRP-1, §§ I.C.d-e, p. 5.

⁴⁵ Even where the maximum permitted time frame of ten years may be allowed by the Central Valley Water Board, the time schedule is not necessarily unreasonable. This order sets out a number of new metrics and approaches to measuring and reporting on management practices, particularly with regard to nitrogen application, and also requires revisions to ~~both the surface water and~~ groundwater monitoring provisions of the General WDRs. Our direction is intended to strengthen the link between management practice implementation and water quality outcomes so that we
(Continued)

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

The receiving water limitations – to not cause or contribute to exceedances of water quality objectives, unreasonably affect beneficial uses, or cause or contribute to a condition of pollution or nuisance – establish clear water quality based requirements for the Eastern San Joaquin Agricultural General WDRs.⁴⁶ But Key Element 1 also requires nonpoint source programs to address nonpoint source pollution “*in a manner* that achieves and maintains water quality objectives and beneficial uses (emphasis added).” A regional water board’s obligation under the Water Code and the Nonpoint Source Policy does not terminate with establishing the appropriate water quality objectives; the regional water board must determine “that there is a high likelihood the implementation program will attain [the regional water board’s] stated water quality objectives.”⁴⁷

Yet a broad scale nonpoint source regulatory program does not necessarily generate the type of data that facilitates easy determination and enforcement of compliance with receiving water limitations. In a permit for a traditional point-source facility, the water boards set a water quality-based effluent limitation to be met at the discharge point and require monitoring of the discharge to verify that the limitation is being met. As we will discuss in greater detail in the section on surface water and groundwater quality monitoring, in a landscape-based, nonpoint source program such as the irrigated lands program, monitoring the numerous and sometimes indeterminate set of farm discharge points is an impractical, prohibitively costly, and often

have the information needed to guide the program more quickly toward compliance. But development and implementation of the revised monitoring and reporting requires investment of time. And research to determine appropriate nitrogen application metrics is needed, along with correlation of practices with the data received through the monitoring and the reporting of the nitrogen application data. As a result, we cannot say that ten years is per se an unreasonable time frame for compliance with the receiving water limitations.

⁴⁶ In Order WQ 2013-0101, we added a provision to the Central Coast Agricultural Order to clarify that, in order to comply with the receiving water limitations, “Dischargers must (1) implement management practices that prevent or reduce discharges of waste that are causing or contributing to exceedances of water quality standards; and (2) to the extent practice effectiveness evaluation or reporting, monitoring data, or inspections indicate that the implemented management practices have not been effective in preventing the discharges from causing or contributing to exceedances of water quality standards, the Discharger must implement improved management practices.” (State Water Board Order WQ 2013-0101, p. 26.). The Sacramento Superior Court Ruling questioned whether the requirement to implement “improved” management practices, in the absence of additional standards and verification of what constitutes an improved management practice, would in fact ensure effective reduction of pollution. (Sacramento Superior Court Ruling, pp. 33-35.) The Sacramento Superior Court Ruling appears to read the revision as requiring only nominal improvements without a clear mandate to achieve the receiving water limitations over some defined timeframe. Although we disagree that the revision should be read in that manner, to the extent the Superior Court’s interpretation is affirmed on appeal, we note that the Eastern San Joaquin Agricultural General WDRs are clearer in mandating that discharges may not cause or contribute to exceedances of water quality objectives except where a clearly articulated program of management practice implementation with a finite time schedule is established.

⁴⁷ Nonpoint Source Policy, p.11, AR 36150. See also *Asociacion de Gente Unida por el Agua v. Central Valley Water Board* (2012) 210 Cal.App.4th 1255,1260-61 (stating that “[t]he wish is not father to the action” and finding that a prohibition against water quality impacts is insufficient, in and of itself, to meet water quality requirements, in the absence of additional permit measures to implement and verify achievement of the prohibition).

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

ineffective method for compliance determination and the Nonpoint Source Policy accordingly does not mandate such monitoring. As a result, a nonpoint source regulatory program does not necessarily yield data establishing whether individual growers are in fact causing or contributing to exceedances. Recognizing this challenge, the Nonpoint Source Policy provides that, although management practice implementation is not a substitute for actual compliance with water quality requirements, a schedule of management practice implementation, assessment, and adaptive management may act as a proxy for assessing regulatory program progress.⁴⁸ This direction is captured in Key Elements 2 and 4:

2. A nonpoint source control implementation program shall include a description of the management practices and other program elements that are expected to be implemented to ensure attainment of the implementation program’s stated purpose(s), the process to be used to select or develop management practices, and the process to be used to ensure and verify proper management practice implementation.⁴⁹

. . .

4. A nonpoint source control implementation program shall include sufficient feedback mechanisms so that the regional water board, dischargers, and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different management practices or other actions are required.⁵⁰

Accordingly, the management practice implementation requirements form the backbone of any nonpoint source regulatory framework.

The Eastern San Joaquin Agricultural General WDRs state that Members “shall implement management practices, as necessary, to protect water quality and to achieve compliance with applicable water quality objectives.”⁵¹ Members are further required to implement management practices that 1) minimize waste discharge offsite in surface water; 2) minimize percolation of waste to groundwater; and 3) protect wellheads from surface water intrusion.⁵² Members prepare Farm Evaluations to document implemented management practices.⁵³ Members also propose and implement management practices to minimize excess nutrient

⁴⁸ Nonpoint Source Policy, p.12, AR 36151.

⁴⁹ *Ibid.*

⁵⁰ *Id.*, pp. 13-14, AR 36152-36153.

⁵¹ Eastern San Joaquin Agricultural General WDRs, § IV.A.3, p.18.

⁵² *Id.*, § IV.B.20, p.20. Under Water Code section 13360, the Central Valley Water Board generally may not specify “the design, location, type of construction, or particular manner in which compliance may be had with” waste discharge requirements. For structural management practices, the Eastern San Joaquin Agricultural General WDRs must therefore strike a balance between setting standards that must be achieved and leaving Members flexibility as to the type of design and construction that may be used to meet those standards.

⁵³ Eastern San Joaquin Agricultural General WDRs, § VII.B, pp. 24-25.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

application relative to crop need as specified in a Nitrogen Management Plan.⁵⁴ Members with potential to cause erosion and discharge sediment that may degrade surface waters propose and implement sediment discharge and erosion prevention practices to minimize or eliminate the discharge of sediment above background levels consistent with a Sediment and Erosion Control Plan.⁵⁵ Where the Third Party is required to prepare a SQMP or GQMP, specifying additional or improved management practices to address detected exceedances in a given area, Members also implement management practices in accordance with that plan.⁵⁶

Of course, a management practice-based nonpoint source regulatory program will succeed in its ultimate purpose of “achiev[ing] and maintain[ing] water quality objectives and beneficial uses” only to the extent it facilitates implementation of *effective* management practices. Instituting effective management practices requires sufficient monitoring and reporting to determine if existing management practices are leading to compliance with water quality requirements and implementation of improved water quality practices where they are not. This feedback mechanism – that a nonpoint source discharge control program link its implementation requirements, with some level of confidence, to expected water quality outcomes, and incorporate monitoring and reporting sufficient to verify that link – is a fundamental tenet of the Nonpoint Source Policy, captured in Key Elements 1, 2, and 4. But the Nonpoint Source Policy does not specify a particular level of granularity in monitoring and reporting and therefore leaves significant discretion to the water boards to determine the appropriate level of data gathering and reporting for different programs and different program components. The water boards must strike a balance that, on the one hand, requires sufficient data collection and reporting to allow for meaningful feedback on the program, but, on the other hand, avoids extensive data requirements that demand excessive and unwarranted time and cost to produce and analyze by the growers, the third party, and water board staff. In striking that balance, the water boards also take into consideration grower concerns with disclosure of trade secrets and proprietary business information.

The particular balance struck on this issue in the Eastern San Joaquin Agricultural Order requires significant reliance on the Third Party. The Third Party fulfills the role of collecting data on the management practices that are implemented by the Members. The Farm Evaluation and a Nitrogen Management Plan Summary Report are submitted by the Members to the Third

⁵⁴ *Id.*, § IV.B.8, p.19.

⁵⁵ *Id.*, § IV.B.7, p.19.

⁵⁶ *Id.*, § IV.B.6, pp.18-19.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

Party.⁵⁷ The Third Party in turn reports the information in these plans to the Central Valley Water Board with the data identified or aggregated at a township level, without Member identification or location information.⁵⁸ The Third Party must submit a Management Plan Progress Report to the Central Valley Water Board each year reporting on the degree of implementation of management practices and evaluation of the effectiveness of the management practices with the data in aggregated form.⁵⁹ The Third Party also fulfills the role of monitoring surface water and groundwater quality. Such monitoring is regional in scale and all data is reported to the Central Valley Water Board.⁶⁰

We continue to support third-party approaches to regulating agricultural discharges, as permitted by the Nonpoint Source Policy. We stated our reasons for supporting third-party approaches in Order WQ 2013-0101, in which we encouraged the Central Coast Water Board to consider the third-party structure in future iterations of the Central Coast Agricultural Order:

From a resource perspective, third parties allow a regional water board to leverage limited regulatory staff by acting as intermediaries between the regional water board staff and the growers, freeing regional water board resources to focus on problem areas or actors. Third parties also may have the expertise to provide technical assistance and training to growers at a scale that cannot be matched by regional water board staff resources, and, in many cases, third parties already have relationships in place with the dischargers.⁶¹

Because third parties build on relationships already in place with growers, third parties can engender a high level of trust and more effectively reach out to growers to increase understanding of the permit provisions and to facilitate management practice development and deployment, especially in cases where improved management practices are required of particular growers. In addition, there are a number of cost benefits to the growers enrolled in a third-party program. These include centralization of fee collection and the resulting reduction in the growers' annual water board fee, potentially reduced costs in management practice implementation facilitated by access to management practice effectiveness information, significantly reduced monitoring costs due to allowance for regional and trend water quality monitoring by the third party in lieu of individual farm monitoring under an individual permit, and reduced reporting costs when the third

⁵⁷ *Id.*, §§ VII.B, p. 24-25, VII.D, pp. 26-27.

⁵⁸ *Id.*, Attach. B, MRP, § V.C., Report Components (17)&(18), pp.23-24.

⁵⁹ *Id.*, Attach. B, MRP, Appen. MRP-1, § I.F, p. 6.

⁶⁰ *Id.*, Attach. B, MRP, §§ III & IV, pp. 3-20.

⁶¹ State Water Board Order WQ 2013-0101, pp. 13-14.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

party shoulders responsibility for data entry into systems such as CEDEN and GeoTracker.⁶² The Agricultural Expert Panel also endorsed the third-party based approach of the Central Valley Water Board irrigated lands program and recommended that other regional water boards follow a similar approach.⁶³ We take our support for third parties one step further in this Order. We believe that a carefully-crafted third party-based approach should be an available option for all of the significant agricultural discharge programs in the state. Therefore, we direct all of the regional water boards to issue general waste discharge requirements or general waivers of waste discharge requirements based on a third-party approach consistent with our description of the roles and responsibilities of a third party in this Order within the next five years. The regional water boards should also continue to issue general waste discharge requirements or general waivers of waste discharge requirements for individual growers that choose not to form a third party or to join an existing third party. Those individual growers would have the same management and reporting obligations that are identified as precedential in this Order, but would not, of course, receive the benefits associated with being a member of a third party.

Nevertheless, we acknowledge that there are challenges associated with a third-party based approach to nonpoint source regulation. One such challenge is to ensure sufficient granularity to the data collected and reported to provide meaningful information on the performance of the program and on required improvements. Where a third party acts as an intermediary between the growers and the regional water board, the program's success depends not only on whether the third party is collecting appropriate and relevant data, but also on whether the third party is reporting that data to the regional water board with sufficient detail to allow appropriate regulatory oversight as well as transparency in implementation of the program and water quality results. In particular, concerns with privacy and protection of proprietary information may create strong incentives in support of a framework where the third party retains most information on farm-level management practice and water quality performance rather than submitting that information to the regional water board and, by extension, making it available to the public.

The Environmental Petitioners argue that the Eastern San Joaquin Agricultural General WDRs require monitoring and reporting at a level of granularity too general to achieve the

⁶² CEDEN is the State Water Board's data system for surface water quality in California. GeoTracker is a statewide database and geographic information system that provides online access to environmental data. The Eastern San Joaquin Agricultural General WDRs require entry of surface water quality data collected under the General WDRs into CEDEN and groundwater quality data collected into GeoTracker.

⁶³ Agricultural Expert Panel Report, p. 27.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

feedback mechanism the Nonpoint Source Policy requires: the adopted regulatory program cannot establish that the required management practices have a high likelihood of achieving the receiving water limitations because there is insufficient monitoring and reporting to verify that link or to require appropriate adaptive management to achieve progress. The Environmental Petitioners assert that the weaknesses of the Eastern San Joaquin Agricultural General WDRs are two-fold: First, there is insufficient disclosure and transparency with regard to the management practices being implemented on the ground by the Members because only limited, aggregated data must be reported regarding such practices. Second, the representative and regional monitoring program does not produce specific enough data to determine if any of the implemented management practices are in fact leading to meeting water quality requirements. The Environmental Petitioners advocate for farm-level reporting of data, which, the Environmental Petitioners imply, would provide the necessary detail and accountability to tie management practices implemented by Members with their direct impact on water quality.

In the sections that follow, we review the core requirements of the Eastern San Joaquin Agricultural General WDRs to determine whether the required implementation of management practices have a high likelihood of leading to achievement of the water quality requirements of the General WDRs and, more specifically, whether the monitoring and reporting requirements constitute a sufficient feedback mechanism to verify that appropriate management practices are being proposed and implemented in pursuit of the water quality requirements. We find that the data required to be reported by the Members to the Third Party is generally appropriate, but direct several revisions, primarily with regard to nitrogen application reporting. With regard to reporting of the data from the Third Party to the Central Valley Water Board, we revise the General WDRs to require reporting of some of the data at a field level. We also revise elements of the water quality monitoring provisions. With regard to surface water monitoring, we direct [State-Central Valley Water Board staff to ~~convene a panel of experts~~ coordinate a technical audit to be conducted by an external third party reviewer within two years of adoption of this Order](#) for further consideration of an appropriate monitoring framework.

Our revisions are based on recommendations of the Nitrogen Tracking Task Force Report, the Agricultural Expert Panel Report, and on our own review of the General WDRs. We also relied substantially on a compromise proposal regarding data submission that a group of agricultural representatives and environmental justice organization representatives jointly presented to Board members during the pendency of our own motion review. The directed revisions are designed to strengthen the correlation between the management practices implemented, the monitoring and reporting required, and the water quality requirements of the

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

General WDRs. In particular, the automatic reporting of certain data to the Central Valley Water Board at the field level, rather than only in summary form, is expected to lead to more effective oversight and management of the program by the Central Valley Water Board, as well as provide more transparency for the public.⁶⁴ We conclude that the Order is consistent with the Water Code and with the Nonpoint Source Policy with the revisions that we direct.

Appendix A is a copy of the Eastern San Joaquin Agricultural General WDRs with revisions directed by us shown in red in underline/strikeout format. We reference Appendix A throughout our discussion below and hereinafter refer to it as the “Modified Eastern San Joaquin Agricultural General WDRs.” In addition to the revisions referenced specifically in this order, Appendix A contains a number of conforming revisions to make other sections of the Modified Eastern San Joaquin Agricultural General WDRs consistent with the directed revisions (such as revisions to Attachment E, Definitions), as well as additional substantive and non-substantive minor revisions throughout.⁶⁵

1. Vulnerability Determinations

Before we proceed with our step-by-step review of the core requirements of the Eastern San Joaquin Agricultural General WDRs, we take up an issue that informs a number of the requirements. One premise of the Eastern San Joaquin Agricultural General WDRs is that regulatory requirements, and limited resources for regulatory oversight, should be concentrated on those activities or conditions that constitute the highest risk to water quality. Throughout, the General WDRs impose requirements in part based on whether an operation is in an area that has high or low vulnerability for water quality impacts. The term “high vulnerability” is defined for surface water and groundwater (see discussion that follows);⁶⁶ the Third Party is tasked with designation of the areas, with review by the Executive Officer.⁶⁷

The vulnerability approach of the Eastern San Joaquin Agricultural General WDRs is similar to the risk-based tier designations of the Central Coast Agricultural Order that we

⁶⁴ As will be discussed in detail in the sections that follow, we have not required the initial reporting of field-level data with name or location identifiers. For the reasons discussed below, we find that the effective management of a nonpoint source program for agricultural discharges is not necessarily dependent on tying each data point to a discharger identified by name, or to a specific location. However, we find it is essential to continue to allow the Central Valley Water Board to require submittal of specific names or locations, or names or locations generally, should the Central Valley Water Board make a determination that it is necessary.

⁶⁵ We note that this order provides the rationale for the significant revisions to the Eastern San Joaquin Agricultural General WDRs. We have not updated all findings of the General WDRs and supporting documents, including in particular the Information Sheet, related to the revisions. Nor have we updated the findings of the General WDRs and supporting documents to reflect all new and changed information since the issuance of the General WDRs.

⁶⁶ Eastern San Joaquin Agricultural General WDRs, Attach. E, Definitions, §§13-14, pp. 2-3.

⁶⁷ *Id.*, finding 22, p. 6; see also *id.*, Att. B, MRP, §IV, pp. 12-13.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

reviewed in Order WQ-2013-0101. The Central Coast Agricultural Order assigns dischargers to one of the three tiers based on a number of criteria intended to capture the risk posed by the operation to water quality and imposes increasingly more stringent requirements from Tier 1 to Tier 2 to Tier 3. The Central Coast Agricultural Order also requires determination of a nitrate loading risk level and uses that determination to further focus requirements. In Order WQ 2013-0101, we acknowledged that neither the tier determinations nor the nitrate loading risk level determinations were exact proxies for actual risk to water quality, but we found them to be reasonable and declined to substitute another imperfect but reasonable set of criteria for those chosen by the Central Coast Water Board. We tasked the Agricultural Expert Panel with evaluating methodologies for determining risk in the context of an agricultural regulatory program.⁶⁸

In considering the appropriateness of risk-based tiering in agricultural regulatory programs, the Agricultural Expert Panel focused on the Eastern San Joaquin Agricultural General WDRs' high vulnerability definition for groundwater. A high vulnerability groundwater area is an area identified by the Third Party "where known groundwater quality impacts exist for which irrigated agricultural operations are a potential contributor or where conditions make groundwater more vulnerable to impacts from irrigated agricultural activities." Additionally, areas are considered high vulnerability areas for groundwater if "(1) there is a confirmed exceedance (considering applicable averaging periods) of a water quality objective or applicable water quality trigger limit . . . in a groundwater well and irrigated agriculture may cause or contribute to the exceedance; (2) the Basin Plan requires development of a groundwater quality management plan for a constituent or constituents discharged by irrigated agriculture; or (3) the Executive Officer determines that irrigated agriculture may be causing or contributing to a trend of degradation of groundwater that may threaten applicable Basin Plan beneficial uses."⁶⁹

The Agricultural Expert Panel found that this definition of high vulnerability in the General WDRs was vague, ambiguous, circular, and not supported by a sound technical rationale. In particular, the Agricultural Expert Panel pointed to the difficulty of directly linking water supply well nitrate concentrations to above-ground practices. In many cases groundwater

⁶⁸ State Water Board Order WQ 2013-0101, pp. 20, 43. In reviewing Order WQ 2013-0101, the Sacramento Superior Court Ruling stated that the fact that only a small number of growers are subject to Tier 3 was "a fundamental problem with the Waiver" (at 35); however, the court did not find issue generally with a risk-based tiering structure.

⁶⁹ Eastern San Joaquin Agricultural General WDRs, Attach. E, Definitions, §13, pp. 2-3. Water quality trigger limits are limits developed by the Central Valley Water Board staff to implement narrative Basin Plan objectives. (*Id.*, Attach. B, MRP, § VIII, pp. 26-27.)

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

nitrate concentrations reflect a mixture of waters with wide-ranging spatial and temporal origins.

Therefore, groundwater wells exhibiting exceedances of water quality standards may not provide the information needed to directly link groundwater conditions to land uses in the immediate area.⁷⁰

More significantly, the Agricultural Expert Panel further found that good nitrogen management is essential in all areas, not just high vulnerability areas, and recommended against differential requirements for nitrogen management based on risk. The Agricultural Expert Panel Report stated:

Because deep percolation of nitrates is universal within irrigated agriculture, a good regulatory program must encompass all irrigated areas, not only lands directly above high nitrate aquifers, those previously identified to be in a high vulnerability area, or those with a certain farm or field size.⁷¹

The Agricultural Expert Panel thus effectively rejected risk categorization for groundwater requirements, recommending that uniform requirements apply to all dischargers.

We agree with the Agricultural Expert Panel's conclusion that distinguishing between high vulnerability and low vulnerability areas for groundwater is at best an inexact science and that groundwater protection requirements (inclusive, in our opinion, of reporting requirements designed to inform protection and track effectiveness and progress) should instead apply uniformly to all areas. In most instances, groundwater is vulnerable to agricultural nitrate impacts, regardless of the time it takes for those impacts to appear in groundwater due to soil conditions, geologic conditions, and/or depth to groundwater. We will direct revisions to the Eastern San Joaquin Agricultural General WDRs throughout this order to impose the requirements currently imposed only on Members in high vulnerability groundwater areas on all Members. These revisions are discussed under the headings for each set of core requirements.

The Agricultural Expert Panel did not consider whether the terms high vulnerability and low vulnerability should continue to be used in the context of surface water requirements. The Eastern San Joaquin Agricultural General WDRs' determination of high vulnerability areas for surface water is based on exceedances of water quality objectives or water quality triggers twice in a three year period in the area, any Basin Plan requirements for development of a water quality management plan for an irrigated lands related constituent in the area, or an Executive Officer determination that discharges from irrigated lands may be causing or contributing to a trend of

⁷⁰ Agricultural Expert Panel Report, p. 18.

⁷¹ *Id.*, p. 26.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

degradation of surface water in the area.⁷² Determining whether an area is a high vulnerability area for surface water does not necessarily suffer from the same level of technical uncertainty as the determination of high vulnerability areas for groundwater. Nevertheless, we will not rely on that distinction in the Eastern San Joaquin Agricultural General WDRs because, in light of our revisions to impose many of the same requirements in high and low vulnerability areas for groundwater, the categories for surface water are left with little utility in the General WDRs.⁷³ We note these revisions under the appropriate discussion.

The Agricultural Expert Panel Report left open the possibility that the concept of high vulnerability or similar risk-based category may be used for prioritization where requirements need to be phased in for sets of dischargers over time.⁷⁴ We are cognizant that much of the work to designate high and low vulnerability areas in the Eastern San Joaquin River Watershed has already been completed. We are also cognizant that the expanded reporting obligations will result in increased costs to the growers in low vulnerability areas and to the Third Party, which must now work with a larger set of growers to assist in form submission and must now collect and analyze a larger set of grower data. Accordingly, we will provide for additional time, as specified under each relevant section below, for requirements currently imposed only in high vulnerability areas to also apply to low vulnerability areas. Additionally, under our revisions, the high/low vulnerability designations may continue to be used for prioritization in the context of some of the groundwater monitoring requirements, as we will discuss in section II.A.8 of this order.⁷⁵ Further, the criteria forming the definition of high vulnerability will continue to inform the requirement to prepare a water quality management plan for both surface water and groundwater.

The uniform application of requirements for groundwater protection shall be precedential for irrigated lands programs statewide. But we leave open the possibility that risk-based designations continue to be used for differentiating surface water protection requirements and for phasing in groundwater protection requirements. We also decline to direct a uniform set

⁷² Eastern San Joaquin Agricultural General WDRs, Attach. E., Definitions, §14, p.3.

⁷³ There are only two provisions where the distinction between high and low vulnerability areas for surface water are called out in the Eastern San Joaquin Agricultural General WDRs – the requirement to participate annually in outreach events applies only to Members in high surface water or groundwater vulnerability areas (*id.*, § IV.B.4, p.18) and only Members in high surface water or groundwater vulnerability areas must update the Farm Evaluation annually (*id.*, § VII.B, pp.24-25.).

⁷⁴ Agricultural Expert Panel Report, pp. 16-17.

⁷⁵ The groundwater monitoring requirements of the Eastern San Joaquin Agricultural General WDRs, discussed in section II.A.8, are carried out by the Third Party and implemented and phased in in part based on determinations of high and low vulnerability. Because of the time and resources that have already been invested by the Third Party and Central Valley Water Board in setting up the vulnerability-based framework for the groundwater monitoring programs, we continue to allow phasing based on vulnerability for those requirements.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

of criteria for risk designation and leave the regional water boards with considerable discretion to design reasonable frameworks for differentiation and prioritization. In addition to the high/low vulnerability approach of the Eastern San Joaquin Agricultural General WDRs, such criteria may, for example, include the risk-based tier designations in the Central Coast irrigated lands programs or possibly categories based on farm-size.⁷⁶

Finally, we acknowledge, as further discussed in Section II.A.5.b below, that there may be uniquely-situated categories of growers for whom the requirement for nitrogen reporting is inappropriate. Our order revisions allow a category of growers to be exempted from the nitrogen applied and removed reporting requirements subject to a demonstration that applied nitrogen is not expected to seep below the root zone and cause or contribute to degradation of groundwater quality in amounts that would, even over multiple decades, reach groundwater, and is further not expected to discharge to surface water.

2. Requirement to Participate in Outreach Events

Under the Eastern San Joaquin Agricultural General WDRs, members in high vulnerability areas are required to participate in outreach events and review outreach materials to become informed of any known water quality problems and the management practices that are available to address those problems.⁷⁷ We extend the requirement to participate in outreach events to all Members. This is consistent with the direction of the Agricultural Expert Panel for the development of a “very strong, comprehensive, and sustained educational and outreach program.”⁷⁸ However, we recognize the additional burden on some Members and on the Third Party created by applying the outreach participation requirement uniformly. Because all Members must now participate in third-party outreach events, at least annually, we revise the provision to allow for the possibility of participation to occur without in-person attendance. We also phase in the requirement to participate in outreach events in low vulnerability areas by requiring participation beginning only in 2020. This delay will provide the Third Party an opportunity to increase staffing and funding for outreach events. As appropriate depending on the anticipated grower audience, we expect that the outreach events and outreach materials will be provided in multiple languages.

The requirement for uniform participation in outreach events shall be precedential for irrigated lands programs statewide.

⁷⁶ Phasing by farm size leads to initial compliance by a large number of acres represented by a small number of growers.

⁷⁷ Eastern San Joaquin Agricultural General WDRs., § IV.B.4, p.18.

⁷⁸ Agricultural Expert Panel Report, p.27.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural Order, section IV.B.4, page 19.

3. Farm Evaluation

The Eastern San Joaquin Agricultural General WDRs require that all Members complete a Farm Evaluation describing management practices implemented to protect surface water and groundwater quality. The Farm Evaluations also include information such as the location of the farm, surface water discharge points, and the location of wells. Farm Evaluations are required of all Members, but only Members in high vulnerability areas must update the Farm Evaluation annually. The Farm Evaluation must be prepared by the Member and submitted to the Third Party. The Member must keep a copy and must produce it upon request by the Central Valley Water Board staff.⁷⁹ The Third Party aggregates and summarizes information collected from Farm Evaluations in the annual Monitoring Report submitted to the Central Valley Water Board.⁸⁰ We make several revisions to the Farm Evaluation provisions as laid out below.

a. Farm Evaluation Update Frequency

The Farm Evaluations are the mechanism for identification of the on-farm management practices implemented to achieve the General WDRs' management practice performance standards. As such, they constitute an essential component of the General WDRs. However, we find that annual submission of the Farm Evaluations is necessary only when water quality problems indicate the need for iterative updating of implemented management practices. Based on the experience of the East San Joaquin Water Quality Coalition to date, most implemented management practices otherwise remain fairly stable from year to year.

For this reason, we require submission of the Farm Evaluations only every five years for Members in both high vulnerability areas and low vulnerability areas, except where the Executive Officer determines that more frequent reporting is warranted.⁸¹ In turn, we strengthen the requirements for management practice implementation data reporting for fields covered by an SQMP or GQMP. As will be discussed under section 9 below (Surface Water and Groundwater Quality Management Plans), we require submission of a separate Management Practice Implementation Report (MPIR) for Members in areas for which the third party is implementing a SQMP or GQMP. The Central Valley Water Board, with input from the Third Party, will have discretion to determine appropriate reporting frequency for the MPIR based on the life cycle of the

⁷⁹ Eastern San Joaquin Agricultural General WDRs., § VII.B, pp. 24-25.

⁸⁰ *Id.*, Attach. B, MRP, § V.C, Report Component (18), pp.23-24.

⁸¹ The Executive Officer may, for example, require more frequent update and submission of the Farm Evaluation where a Member is an outlier for nitrogen application.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

management practices being implemented, but we expect that the reporting will be annual or more frequent. We also move the reporting of irrigation practices and nitrogen application practices to the Irrigation and Nitrogen Management Summary Report so that these practices continue to be reported on an annual basis.

The requirement for submission by all growers of management practice implementation information shall be precedential for irrigated lands programs statewide, however, the regional water boards shall continue to have discretion as to the frequency of such submissions.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VII.B, pages 25-26, section VII.G, p. 31, Attachment B, MRP, section VI.B, INMP Components (4) and (5) .

b. Content of Farm Evaluation Template

In terms of the content of the Farm Evaluation, we direct changes to the information fields of the template. The Central Valley Water Board has approved a template for the Farm Evaluation. The Farm Evaluation template lists management practices appropriate for pesticide application, irrigation, nitrogen management, and sediment and erosion management and directs Members to identify those management practices employed at their operations. We expand the list of management practices a Member should consider with the purpose of making the list more comprehensive. However, we also move questions regarding irrigation and nitrogen management to the Irrigation and Nitrogen Management Plan Summary Report, discussed in section 5, since these management practices are most relevant in that context and should be reported annually along with nitrogen-related data on that form.

The Third Party and the Central Valley Water Board retain the flexibility to propose and approve any Farm Evaluation template that meets the minimum requirements specified in the General WDRs. The content specified for the Farm Evaluation template in this Order is not intended to be precedential for irrigated lands programs statewide.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VIII.C.1, pages 32-33, section VII.G, p. 31, Attachment B, MRP, section VI.A, page 31, section VI.B, INMP Components (4) and (5), p.33, and Attachment B, MRP-1, section F, page 7.

c. Submission of Farm Evaluations to the Central Valley Water Board

As we have previously stated, the Eastern San Joaquin Agricultural General WDRs require Members to implement management practices that minimize waste discharge offsite in surface water, minimize percolation of waste to groundwater, and protect wellheads from surface

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments. water intrusion.⁸² The General WDRs require the Members to submit Farm Evaluations, which include implemented management practices, to the Third Party.

The Third Party summarizes and aggregates the data, conducts a quality assessment of the information, and submits the summary to the Central Valley Water Board. . The Central Valley Water Board may, however, at any time request the underlying data for a particular Member or area.⁸³ We generally affirm this framework for reporting of the Farm Evaluation data to the Central Valley Water Board, but require that individual data records also be submitted to the Central Valley Water Board associated with unique anonymous Member identifiers. The Third Party is directed to permanently associate each Member with a unique, anonymous identifier (Anonymous Member ID).⁸⁴ The Third Party is directed to submit the management practice implementation data from the Farm Evaluation to the Central Valley Water Board for each field, linked with the Anonymous Member ID. An example of a data set for management practice implementation is attached as sample data Table 1,⁸⁵ solely for illustrative purposes.

As discussed in the introduction to this section, waste discharge requirements must implement the relevant water quality control plans and consider the beneficial uses and water quality objectives specified in those plans. The Nonpoint Source Policy allows reliance on management practice implementation to control sources of pollution, but specifies that a nonpoint source program relying on management practice implementation must incorporate a feedback mechanism whereby a nonpoint source discharge control program links its implementation requirements, with a high level of confidence, to expected water quality outcomes, and adaptively manages the program to institute improved management practices where additional measures are needed to meet the water quality requirements. That feedback mechanism relies on the availability of information on the management practices currently being implemented. [For the irrigated lands nonpoint source regulatory program where we are not requiring individual field](#)

⁸² Eastern San Joaquin Agricultural General WDRs, § IV.B.20, p.20.

⁸³ *Id.*, § X, p. 36. The Central Valley Water Board has the discretion to request underlying data for a specific area with or without the identification of the Members, depending on the purpose of the request.

⁸⁴ In Section 5.e, we require nitrogen application data to be reported with an anonymous APN-based location identifier in addition to separately reporting nitrogen application data with an Anonymous Member ID, for the reasons discussed in that section. At this time, we are only requiring the management practice implementation data to be reported by an Anonymous Member ID. We may consider adding an APN-based location identifier to the reporting requirements in the future if we determine that it is important for practices to be pinpointed to a location.

⁸⁵ Table 1 additionally illustrates the data sets to be obtained from the reporting of management practices associated with irrigation and nitrogen management, which are now reported with the Irrigation and Nitrogen Management Plan Summary Report as discussed above and from management practice implementation through SQMPs and GQMPs as will be discussed in section II.A.9 below.

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The aggregation and summary provided by the Third Party is a useful analysis for characterizing the trends in management practice implementation in the Eastern San Joaquin River Watershed and we acknowledge the key role of the Third Party in facilitating and compiling the analysis. Availability of the underlying individual field-level data to the Central Valley Water Board is important for verification of the data and the analyses prepared by the Third Party as well as ensuring that the Third Party is following up appropriately with the Members that warrant additional assistance. The individual field-level data will also support Central Valley Water Board analyses to identify effective and ineffective management practices. [We recognize that this field-level data is not required for all water quality programs, but believe it is necessary due to the large-scale nature of the irrigated lands program and the Third Party framework.](#)

The requirement to submit Member-specific field-level management practice implementation data to the regional water board shall be precedential statewide. For third-party programs only, the data shall be submitted with Anonymous Member IDs unless the regional water board finds that there is a compelling grower-specific or location-specific reason why the data should be submitted with name or location identifiers.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VIII.D, page 34, Attachment B, MRP, section V.C, pages 23-24, and section V.E, Report Component (18), page 30.

4. Sediment and Erosion Control Plan

Under the Eastern San Joaquin Agricultural General WDRs, Members with potential to cause erosion and discharge sediment that may degrade surface waters must propose and implement sediment discharge and erosion prevention practices to minimize or eliminate the discharge of sediment above background levels, consistent with a Sediment and Erosion Control Plan.⁸⁶ The Sediment and Erosion Control Plan must be prepared by the Member and must either conform to a site-specific recommendation from the Natural Resources Conservation Service or be certified. The Plan must be kept on site to be produced upon request by the Central Valley Water Board staff.⁸⁷

Members with potential to cause erosion and discharge sediment must already report management practices implemented to minimize or eliminate sediment and erosion on the

⁸⁶ *Id.*, § IV.B.7, p.19.

⁸⁷ *Id.*, § VII.C, p.25.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

Farm Evaluation. We find that the Sediment and Erosion Control Plan requirements of General WDRs are appropriate as written and do not direct any revisions to the provisions.

The requirement for implementation of sediment and erosion control practices by Members with the potential to cause erosion and discharge sediment that may degrade surface waters shall be precedential for irrigated lands programs statewide; however, the regional water boards shall continue to have discretion as to how these practices are documented and reported.

5. Nitrogen Management Plans

The Eastern San Joaquin Agricultural General WDRs require Members to “implement practices that minimize excess nutrient application relative to crop need.”⁸⁸ This requirement is implemented in part by preparation of a Nitrogen Management Plan. All Members must prepare a Nitrogen Management Plan and all Members must keep the Nitrogen Management Plan on site and make it available to Central Valley Water Board staff upon request. Members in high vulnerability groundwater areas have additional requirements for certification of the Nitrogen Management Plan and submittal to the Third Party of a Summary Report of the past year’s implementation of the Plan.⁸⁹ The Third Party in turn must report aggregated data to the Central Valley Water Board summarizing the range of nitrogen consumption ratios (i.e. nitrogen available for crop uptake divided by the estimated crop consumption of nitrogen) by crop types and soil conditions reported by the Members on the Summary Report. The data is aggregated at the township level and need not identify the Member and associated parcel for a particular nitrogen consumption ratio.⁹⁰ The Central Valley Water Board may, however, at any time request the underlying data for a particular Member or area.⁹¹

The nitrogen management provisions of the Eastern San Joaquin Agricultural General WDRs are of particular significance because nitrate pollution in groundwater is a significant public health threat in the Central Valley.⁹² Nitrates consumed at a concentration above the maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) of nitrate+nitrite as N⁹³ pose serious risks to pregnant women and infants. Nitrate contamination in groundwater in

⁸⁸ Eastern San Joaquin Agricultural General WDRs, § IV.B.8, p.19.

⁸⁹ *Id.*, § VII.D, pp. 26-28.

⁹⁰ *Id.*, Attach. B, MRP, § V.C, Report Component (17), p.23.

⁹¹ *Id.*, § X, p. 36.

⁹² Fertilizers may contain nitrogen in multiple forms (i.e. ammonia, nitrate, etc.), but the form of nitrogen that moves through the soil to groundwater is nitrate. (Nitrite may also be present but typically in very small quantities and is often discounted in general discussions.)

⁹³ The MCL is also expressed as 45 mg/L of nitrate as NO₃. The authority to set the MCL for nitrate previously resided with the California Department of Public Health (CDPH) (and the Department of Health Services prior to the *(Continued)*)

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

the Central Valley was extensively documented in the 2012 Report “Addressing Nitrate in California’s Drinking Water” (UCD Nitrate Report)⁹⁴ prepared for the Legislature. The Nitrogen Tracking Task Force and the Agricultural Expert Panel were proposed as recommendations in the State Water Board’s Report to the Legislature accompanying the UCD Nitrate Report. As discussed, the Nitrogen Tracking Task Force made recommendations for a nitrogen mass balance tracking system and the Agricultural Expert Panel addressed multiple questions posed to it regarding nitrogen management. We make revisions to the nitrogen planning and reporting requirements of the Eastern San Joaquin Agricultural General WDRs as detailed below, primarily to address recommendations by the Agricultural Expert Panel. We have also carefully considered the recommendations of the Nitrogen Tracking Task Force, in particular to ensure consistency generally with the recommended data tracking and reporting approach, although, as discussed below, we require more dis-aggregated data reporting than contemplated by the Nitrogen Tracking Task Force.

a. Consideration of Irrigation Practices

We first add several required planning elements to facilitate crop irrigation management planning, including consideration of irrigation method, crop evapotranspiration, and anticipated crop irrigation. The Agricultural Expert Panel emphasized that nitrogen management must be done hand-in-hand with irrigation management, pointing out that water movement through the soil is the mechanism for nitrate transport.⁹⁵ We will hereinafter refer to the plan as revised in the Modified Eastern San Joaquin Agricultural General WDRs as the Irrigation and Nitrogen Management Plan or “INMP,” and to the summary submitted to the Third Party as the “INMP Summary Report.” As stated under section 3 (Farm Evaluation), we also move reporting sections related to irrigation management and nitrogen management from the Farm Evaluation to the INMP Summary Report. Finally, we add a question inquiring whether the Member has been identified in the past year as an outlier for nitrogen application, a concept we discuss in greater detail below. The addition of this question assists in verifying that the Third Party and the Members are communicating effectively and alerts the Central Valley Water Board that the

establishment of CDPH), but the authority to set the MCL for nitrate is now within the purview of the State Water Board.

⁹⁴ Harter, T. et al. *Addressing Nitrate in California’s Drinking Water*. (UC Davis Groundwater Nitrate Project, March 2012) (Harter Report). The Harter Report is included in the administrative record of the proceedings to adopt the Eastern San Joaquin Agricultural General WDRs, submitted to the State Water Board by the Central Valley Water Board. (AR 34141-35717.)

⁹⁵ Agricultural Expert Panel Report, p.ii.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

Member may have been required to update or improve management practices related to irrigation and nitrogen management.

The requirement for incorporation of irrigation management elements into nitrogen management planning shall be precedential for irrigated lands programs statewide.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, Attachment B, MRP, section VI.B, pages 32-37.

b. Extension of Certification and Summary Reporting Requirements to All Members

We next make revisions to the nitrogen management provisions of the Eastern San Joaquin Agricultural General WDRs to remove the distinction in requirements for high and low vulnerability groundwater areas. This revision means that all Members must now have a *certified* INMP and must submit an INMP Summary Report to the Third Party. We have also specified certification language for the INMP that states that the preparer used sound irrigation and nitrogen management planning practices to develop irrigation and nitrogen application recommendations and that the recommendations are informed by applicable training for meeting the crop's agronomic needs while minimizing nitrogen loss to surface water and groundwater.⁹⁶ However, we allow Members in low vulnerability areas until March 1, ~~2020~~2023, to complete a certified INMP, and until March 1, 2021, to submit the INMP Summary Report. The phasing allows limited certification resources to continue to focus on the higher priority acreage while available training develops to match the demand for certification. The training needs to continue to evolve to better incorporate the concepts related to irrigation and nitrogen management planning expressed in this Order and recognized by the Expert Panel.⁹⁷ The phasing also allows the Third Party additional time to expand its staffing and funding to accommodate outreach and processing for nitrogen application submissions.

The requirement for all Members to prepare certified irrigation and nitrogen management plans and to submit summary data from the plans to the party shall be precedential statewide. The certification language shall also be precedential statewide.

⁹⁶ In expanding the certification requirement, we are also sensitive to the concerns expressed by professionals certifying the INMP regarding potential liability for groundwater nitrate impacts, as well as the scope of their professional insurance coverage. With regard to liability under the Water Code, we note that consultants to dischargers are generally not considered to be dischargers of waste and therefore not liable for violations of the dischargers' waste discharge requirements. With regard to third-party liability, we direct the Central Valley Water Board and the Third Party to include specific language in the certification aimed to limit such liability. (See App. A, Modified Eastern San Joaquin Agricultural General WDRs, Attach. B, MRP, § VI.B, INMP Component (26), page 35-36, Attach. E, Def., 7 & fn. 2, p.2.) The certification language additionally states that the certification does not create liability for environmental violations.

⁹⁷ Agricultural Expert Panel Report, pp. 29-30-.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

However, we recognize that there may be uniquely-situated categories of growers for whom the requirement for nitrogen management is inappropriate because applied nitrogen is not expected to seep below the root zone in amounts that would, even over multiple decades, reach groundwater, and is further not expected to discharge to surface water. We will not distinguish these categories based on high and low vulnerability as the Eastern San Joaquin Agricultural General Order currently does. Instead, any category of Members (such as growers of a particular crop or growers in a particular area) seeking to be exempted from irrigation and nitrogen planning and reporting requirements shall make a demonstration, for approval by the relevant regional water board, that nitrogen applied to the fields does not percolate below the root zone ~~and cause or contribute to degradation of groundwater quality in any significant amount and does not migrate to surface water through discharges, including drainage, runoff, or sediment erosion.~~⁹⁸ The criteria for determining categories of growers that may be exempted from the irrigation and nitrogen planning and reporting requirements shall also be precedential statewide.

c. *New Metric for Nitrogen Application Management*

We make additional revisions to the nitrogen management provisions of the Eastern San Joaquin Agricultural General WDRs in response to recommendations made by the Agricultural Expert Panel regarding methodologies for measuring appropriate nitrogen application and assessing nitrogen over-application. The purpose of the nitrogen management planning requirements in the Eastern San Joaquin Agricultural General WDRs is two-fold. First, the INMP aids Members in projecting the total nitrogen a given crop will require for a single growing season. This is done by considering the nitrogen already available in soil and irrigation water, which allows a grower to plan for the appropriate amount of fertilizer to be applied to meet crop requirements. Such planning helps avoid over-application of nitrogen fertilizer that may lead to excess loss of nitrogen to groundwater. Second, the data made available to the Third Party and the Central Valley Water Board through the INMP Summary Report enables those entities to consider the range of nitrogen application values reported for similar crops and allows the Third Party to identify outliers for follow-up actions with the goal of reducing over-application.

We considered nitrogen application planning and reporting in the Central Coast Agricultural Order in Order WQ 2013-0101. In that case, we struck a requirement for Central

⁹⁸ Based on written and verbal comments received on a February 8, 2016, draft of this order, we have been made aware that rice growers in the Central Valley region may have already made the required demonstration, but that will be a determination for the Central Valley Water Board to make in the first instance. Similarly, members in the San Joaquin County and Delta Water Quality Coalition may have demonstrated that nitrogen applied to the fields does not percolate below the root zone, ~~but must, at a minimum, additionally demonstrate that the applied nitrogen does not migrate to the surface water before the Central Valley Water Board could exempt them from the irrigation and nitrogen planning and reporting requirements.~~

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

Coast dischargers to “make progress toward” a target ratio of nitrogen application to nitrogen uptake in favor of requiring all Tier 2 and Tier 3 dischargers to report total nitrogen applied by fields or management blocks. We stated that the directed revisions “reflect[ed] our best judgment as to temporary measures required to keep work on this important public health and environmental issue moving forward” but that we would look to the Agricultural Expert Panel to “propose a comprehensive, consistent approach that will inform agricultural regulatory programs statewide.”⁹⁹ In reviewing the Eastern San Joaquin Agricultural General WDRs, we now have the benefit of the Agricultural Expert Panel Report, and make revisions to the General WDRs consistent with the Panel’s recommendations on nitrogen management.

The Agricultural Expert Panel reviewed the crop uptake ratio we rejected in Order WQ 2013-0101 and the nitrogen consumption ratio in the Eastern San Joaquin Agricultural General WDRs, and considered the difficulties associated with determining field level nitrogen balances.¹⁰⁰ The Agricultural Expert Panel additionally considered the recommendations of the Nitrogen Tracking Task Force, including the recommendation that growers track values for total nitrogen applied to the field, actual yield, and nitrogen removed from the field through primary and secondary harvest yields.¹⁰¹ The Agricultural Expert Panel proposed a refinement on the nitrogen applied and nitrogen removed calculations as the simplest metric of good management – the multi-year ratio of nitrogen applied to the field (A) to nitrogen removed from the field (R), or the A/R ratio. The nitrogen applied includes nitrogen from any source (i.e. organic amendments, synthetic fertilizer, and/or nitrogen in irrigation water). The nitrogen removed includes the nitrogen present in all harvested materials removed from the field (including any prunings, removed vegetation, etc.) plus, in the case of perennial crops, the nitrogen sequestered in the permanent wood.¹⁰² Nitrogen removed is based on a measurable value of yield. Crop yield is multiplied by a coefficient determined via direct testing of the harvested materials. The nitrogen removed coefficient expresses the amount of nitrogen for a given crop per unit of crop yield.

The multi-year A/R ratio, as proposed by the Agricultural Expert Panel and implemented in this order, is distinguished from previous ratios in two ways. First, it utilizes

⁹⁹ State Water Board Order WQ 2013-0101, p. 42. The Sacramento Superior Court Ruling stated that the court “is not persuaded that an adequate Waiver necessarily must include nitrogen balancing ratios,” but questioned the State Water Board’s rationale in removing them as reportable milestones. (Sacramento Superior Court Ruling at 36.) As we discuss in this order, the Agricultural Expert Panel, building on work by the Nitrogen Tracking Task Force, proposed a metric for nitrogen balancing which we now direct all irrigated lands programs to adopt.

¹⁰⁰ Agricultural Expert Panel Report, pp. 21-22.

¹⁰¹ Nitrogen Tracking Task Force Report, p. 17.

¹⁰² *Id.*, p. 28.

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removed nitrogen instead of nitrogen uptake/consumption. This is an important simplification as it is based on a measurement instead of an estimate. The basis of any good performance metric is that it relies on quantitative measurements that can be performed simply and repeatedly with relative accuracy and that it is easy to understand. The uptake/consumption of nitrogen by a crop as it was employed by the previous orders was based on estimation, not a measurement. Often the published guidance regarding plant uptake/consumption has wide ranges of values from which to select, with variation from low to high values ranging as much as 40 percent. Because of these inherent complexities and inaccuracies, using uptake/consumption as part of a performance metric is problematic. Second, utilizing the measurements of applied and removed nitrogen over several years allows for variations that happen from year to year to cancel out and the carryover of nitrogen in soil to become insignificant for purposes of tracking and reporting. A multi-year approach to a performance metric related to nitrogen management serves to simplify some of the inherent complexity of trying to perform a nitrogen balance on an annual basis and justly account for nitrogen present in its many varied states within a field and crop system.

When evaluated over multiple years, the A/R ratio provides a reliable measurement of the nitrogen left in the field. In each consecutive year, the nitrogen left in the field from the prior year, as approximated by the A/R ratio, will either be utilized by the next crop or move further down in the soil column with potential to be leached to groundwater. If, over several years, the ratio of nitrogen applied and nitrogen removed from the field remains high, a significant portion of the nitrogen applied to the field is remaining in the field and potentially reaching groundwater over time through percolation.¹⁰³ A high multi-year A/R ratio thus alerts the Member, the third-party group, and the regional water board to the need to address over-application at the field level. As recommended by the Agricultural Expert Panel, a multi-year A/R ratio may also provide the basis for acceptable multi-year A/R ratio target values, with reduction in the multi-year A/R ratio toward the target ratio for an area over time acting as a proxy for reduction in nitrate discharge to groundwater.¹⁰⁴ The Agricultural Expert Panel Report identified a shift to using the A/R ratio in nitrogen management as critical in reducing nitrogen leaching to groundwater because the multi-year A/R ratio will provide a fairly accurate picture of the efficiency of the nitrogen application on the field and the potential over-application of nitrogen over several years. Similarly, the trend in the multi-year A/R ratio over time will inform whether practices are working to reduce the amount of nitrogen being left on the field and the corresponding potential for discharge to groundwater.

¹⁰³ *Ibid.*

¹⁰⁴ *Id.*, pp. iii, 24, 38.

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Although not considered by the Agricultural Expert Panel, we find that the multi-year A/R ratio will be rendered more informative if additionally paired with an A-R difference value (pounds of nitrogen applied minus pounds of nitrogen removed) to further tease out the magnitude of any potential nitrogen over-application, especially in cases where use of only the multi-year A/R ratio may mask significant quantities of nitrogen left in the field.¹⁰⁵ Further, the A-R difference, whether considered at the scale of a field, a township, or an alternative geographic unit, provides useful information on the magnitude of the amount of nitrogen left in the soil with potential to reach groundwater. This data in turn allow the Third Party and regional water board to better focus follow-up and management practice implementation as well as research and modeling on groundwater loading.

We find that the INMP should include recording, and the INMP Summary Report should include reporting, of the data supporting the calculation of the multi-year A/R ratio and A-R difference.¹⁰⁶ We revise the Eastern San Joaquin Agricultural Order to eliminate reporting on the nitrogen consumption ratio and to instead require recording and reporting of the AR data. We will require Members to determine and report nitrogen applied and crop yield.¹⁰⁷ Based on this data, we will require the Third Party to calculate annual A/R ratio and A-R difference values as well as a three-year running average, where feasible,¹⁰⁸ for these values for each Member for each field. The Third Party shall communicate the calculated values back to the Members.

We specify the minimum requirements for the templates for the INMP and the INMP Summary Report as revisions to the General WDRs. Templates may be proposed by the Third Party and used with approval from the Central Valley Water Board.

The requirement for calculation of annual and multi-year A/R ratio and A-R difference parameters for each Member by field shall be precedential for irrigated lands programs statewide; the regional water boards shall retain discretion as to the division of responsibilities among the growers, third parties, and regional water boards for determination of the values, provided that the values are known to both the growers and the third parties.

¹⁰⁵ For example, a grower applying 75 pounds of nitrogen and removing 50 has the same A/R ratio of 1.5 as a grower applying 450 pounds of nitrogen and removing 300. But the nitrogen left in the field by the second grower is six times the magnitude of the nitrogen left in the field by the first grower.

¹⁰⁶ We refer herein to "AR data" to encompass the multi-year A/R ratio and all data required to be reported in support of that ratio, including the A-R difference.

¹⁰⁷ At this early stage in adoption of the AR data reporting, we find it is appropriate to ask Members to report only measured values and not values that require calculation. However, we will require the Third Party to report individual A/R ratio and A-R difference values back to the Members so that the Members have the benefit of the information these values provide.

¹⁰⁸ We recognize that fields are not always planted with the same crop for three consecutive years and further that the boundaries of a fields may change from year to year.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

However, we recognize that for some limited farming practices and cropping rotations the calculation of an A/R may not be possible or the appropriate measure to use. In these situations, this Order will allow the development of an alternate measure that provides an equivalent level of protection. An alternative measure must be submitted by the Coalition with justification, posted for a 30-day public notice for review and comment and approved by the Executive Officer.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VII.D, pages 27-29; Attachment B, MRP, section VI.B, pages 32-37.

d. Requirement for Third Party to Determine Nitrogen Removed Coefficients

One short-term challenge to using the multi-year A/R ratio and A-R difference is that certain information and data gaps need to be filled. There is insufficient information currently available to calculate the R value for most crops. This data needs to be gathered over time. At this time, it is not a common practice for a grower to track the amount of nitrogen removed during harvest. Terminology currently used for nitrogen application recommendations focuses on crop nitrogen uptake or crop nitrogen need with the goal of maximizing crop yield. Use of the multi-year A/R ratio and A-R difference thus requires a change in nitrogen application recommendations and terminology.¹⁰⁹

Research is required to determine crop removal values. The Agricultural Expert Panel recommended research by third-party groups, commodity groups, and institutions to develop the data.¹¹⁰ Such research would determine values for how many pounds of nitrogen are contained in a unit of crop yield (e.g. lbs-N/ton of almonds). This can be expressed as a coefficient, that, when multiplied with a crop harvest, will estimate the nitrogen removed. The research will ultimately need to be completed for all harvested crop materials, including secondary, or complementary, harvests (i.e. prunings, removed vegetation, etc.).

We task the Third Party with conducting the appropriate testing or research¹¹¹ to determine the relevant coefficients for calculating nitrogen removed by crop. We direct the Third Party to publish nitrogen removed coefficients for crops that cover 95% of acreage within the General WDRs' boundaries in time for use with the INMP Summary Reports due 1 March 2021 and 99% of the acreage in time for use with those due 1 March 2023 (with estimated coefficients

¹⁰⁹ Agricultural Expert Panel Report, pp. 27-28.

¹¹⁰ *Id.*, p.40.

¹¹¹ Published values for many crop coefficients are already available in the scientific literature.

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based on similar crops being acceptable for crops covering the remaining 1%). The acceptability of the coefficients will be reviewed by Water Board and CDFA staff and shall be ~~approved~~ by presented to the Central Valley Water Board ~~Executive Officer at a regularly scheduled Board meeting, in consultation with State Water Board staff,~~ following an opportunity for public review and comment. Once ~~approved~~ accepted, the Third Party must use those values to retroactively calculate the A/R ratio and A-R difference, both past annual reported values, and the three-year running average for the A/R ratio based on the three prior years.

The requirement for use of coefficients for conversion of yield to nitrogen removed values shall be precedential statewide. In determining the appropriate coefficients, the regional water boards must approve the values, but may rely on their own research or on the research of the third party, including a review of the scientific literature, and further may consider for approval coefficients evaluated by other regional water boards. Given the coefficients may become points of contention in the adoption of future general orders. The coefficient should (1) be made generally-applicable on a statewide basis; and (2) be adopted and periodically reviewed by the State Board—not separately by the regional boards—through a unified administrative process. We also recommend that the CDFA, which has been instrumental in supporting the development of the coefficients, remain closely involved in determination process

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, Attachment B, MRP, Section V.D, page 25.

e. Expansion of Reporting Requirements

i. Rationale for Field-Level Nitrogen Application Data Reporting to the Central Valley Water Board

The Eastern San Joaquin Agricultural General WDRs require Members to report nitrogen application data in the INMP Summary Report that is submitted to the Third Party; the Third Party in turn aggregates that data and reports it to the Central Valley Water Board in a manner that characterizes the input, uptake, and loss of the nitrogen application by specific crops, but summarizes the data at the township level, rather than by Member or field.¹¹² Because the multi-year A/R ratio will provide a concrete, measurable, and reliable benchmark by which progress in reducing groundwater nitrate impacts can be determined, we find that the data should be reported to the Central Valley Water Board by field (although, as we discuss in more detail later, we allow for the field-level data to be reported with anonymous identifiers, rather than Member name or location).

¹¹² Eastern San Joaquin Agricultural General WDRs, Attach. B, MRP, § V.C, Report Component (17), p.23.

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Similar to the aggregated data reporting for management practices, the aggregated reporting of nitrogen application data required in the Eastern San Joaquin Agricultural General WDRs allows the Central Valley Water Board to analyze trends in nitrogen application and may indicate whether an area as a whole is making progress toward reducing the potential for nitrates to reach the groundwater.¹¹³ The aggregation and analysis by the Third Party is thus an important task that leads to valuable information. There are nevertheless compelling reasons for the non-aggregated nitrogen application data to also be reported to the Central Valley Water Board at a field level.

Most significantly, access to the full field-level data set will allow the Central Valley Water Board to develop the multi-year A/R ratio target values that were recommended by the Agricultural Expert Panel. As multi-year A/R ratio data becomes available over the next few years, we direct the Central Valley Water Board to determine acceptable ranges for multi-year A/R ratio target values by crop. (We lay out our specific direction to the Central Valley Water Board in the sections that follow.) In describing the assumptions underlying its recommendations, the Agricultural Expert Panel stated that, while there is currently insufficient information to assign target values to the multi-year A/R ratio, “[i]t will be a regulatory goal to learn what the ranges of these multi-year ratios are for multiple crops and situations, in order to define acceptable target values” and that “[i]t will be a regulatory goal to reduce the average value of this A/R metric in regions.”¹¹⁴ Development of acceptable multi-year A/R ratio target values is warranted because the multi-year A/R ratio is the most reliable measure of the potential for nitrogen to reach groundwater that is currently available to us. The AR data captures a particular set of management practices that require implementation at the individual operation and field level. However, the multi-year A/R ratio, analyzed in concert with the data for the A-R difference, additionally provides information on the amount of nitrogen in the soil that could potentially reach the groundwater. In the absence of an extensive – and expensive – shallow groundwater monitoring network, the multi-year AR data is currently the most promising method for determining whether implemented management practices are leading to a meaningful reduction in the nitrogen that has the potential to reach groundwater. Given this dual purpose served by the AR data, and given the magnitude of the problems due to nitrate impacts in groundwater, multi-year A/R ratio

¹¹³ Aggregated data reporting may, however, under some circumstances obscure the on-the-ground reality of how much aggregate nitrogen is being left in the fields because of the averaging effect of reporting fields with over-application along with fields with under-application of nitrogen. For example, the averaging may suggest a net effect of zero, whereas in reality significant nitrogen is left in the field in the first instance, and likely crop failure in the second instance does not act to mitigate the impacts from the nitrogen left in the first field.

¹¹⁴ Agricultural Expert Panel Report, p. 24.

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target values are expected to provide a valuable tool in irrigated lands programs for fair and even-handed consideration of nitrogen application practices. We find that this consideration should be employed to inform Members' practices on a field basis, in addition to a township or broader basis.¹¹⁵

An additional reason we direct the Third Party to submit field-level data to the Central Valley Water Board is that it allows for appropriate oversight by the Board. Access to the full field level data set enables the Central Valley Water Board to verify the accuracy and completeness of the Third Party's calculations and analyses. It also allows the Board to exercise reasonable oversight to confirm that the appropriate Members have been identified as outliers for follow up by the Third Party and, if warranted, the Central Valley Water Board.

Finally, the data set will have uses beyond the short-term needs of the water boards; for example, researchers may use the data to conduct studies advancing the science supporting future developments [of agricultural practices that support development and refinement in the of regulatory programs](#), environmental justice groups may use the township-level data to assist in planning for areas that may need drinking water assistance in the future, and local agencies may use the data in groundwater quality management efforts.

We recognize that the Nitrogen Tracking Task Force recommended that data related to nitrogen application be aggregated prior to being reported to the regional water board.¹¹⁶ However, the Nitrogen Tracking Task Force issued its recommendation before the Agricultural Expert Panel was established, so the Nitrogen Tracking Task Force could not have anticipated that the Agricultural Expert Panel Report would recommend that nitrogen application data be used to develop acceptable multi-year A/R ratio target values. As explained above, in order to develop the target values, the Central Valley Water Board needs access to the field-level data. The Nitrogen Tracking Task Force was working with a different metric, a nitrogen mass balance, which is reported annually rather than on a multi-year basis, is complicated by uncertainty associated with how much nitrogen residual in the soil has the potential to percolate to groundwater, and is therefore not suitable as a performance measure. Because the Nitrogen

¹¹⁵ As the agency with primary oversight over water quality in the Eastern San Joaquin River Watershed, the Central Valley Water Board is the appropriate party to develop the acceptable target values; furthermore, in developing the target values, we expect the Central Valley Water Board to analyze data gathered through irrigated lands regulatory programs throughout the region, not just data gathered through the Eastern San Joaquin Agricultural General WDRs, and to collaborate with other regional water boards to share and compare data with support from the State Water Board. Field studies are not a substitute for access to a complete data set of field-level A/R ratio data. A field study may result in determination of an acceptable A/R ratio target value for a specific set of conditions, but cannot anticipate the variability in conditions throughout a region.

¹¹⁶ Nitrogen Tracking Task Force Report, pp. 15-16.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

Tracking Task Force's proposed nitrogen mass balance approach would not have been used to develop a performance measure, it would not have been necessary for the regional water boards to receive field-level data related to the nitrogen mass balance. Even so, the Nitrogen Tracking Task Force acknowledged that, "if access to more fine-grained data is needed for quality control or problem-solving purposes, the Water Boards can reach down to access growers' original raw data at field scale"¹¹⁷ and further that the regional water boards are "responsible for ensuring the accuracy of the data they receive and may consider developing an audit mechanism."¹¹⁸ The Agricultural Expert Panel found that the AR data needed to be tracked at a field level to be meaningful,¹¹⁹ but the Panel did not specifically speak to whether the field-level data should be reported to a third-party group or to the regional water board. As we discussed in the previous section, the multi-year A/R ratio does not suffer from the uncertainties of previously proposed metrics; and, since the multi-year A/R ratio is less susceptible to misinterpretation or misrepresentation, the argument in favor of providing only aggregated data is less compelling. In any case, anonymous reporting of field-level nitrogen application data, as discussed in the next section, ameliorates some of the concerns expressed by the Nitrogen Tracking Task Force that led to the recommendation of aggregated data reporting to the Regional Board, including the imprecise nature of the reported data and Member confidence in the reporting process.¹²⁰

We also note here that we are not persuaded that the INMP Summary Report data constitutes proprietary business information. In Order WQ-2013-0101 we similarly rejected the argument made by some petitioners that total nitrogen applied is sensitive proprietary information not appropriate for reporting and deferred to the protections for sensitive business information created by the Legislature in the Water Code and the Public Records Act, rather than carve out additional exceptions within the permit.¹²¹ In that case, we required each discharger to report total nitrogen applied directly to the Central Coast Water Board and noted that the timing and

¹¹⁷ *Id.*, p. 19.

¹¹⁸ *Id.*, p. 21.

¹¹⁹ Agricultural Expert Panel Report, pp. 37-38.

¹²⁰ We note that our direction maintains the majority of the recommendations of the Nitrogen Tracking Task Force. The Agricultural Expert Panel only modified two reporting items as recommended by the Nitrogen Tracking Task Force. The Panel eliminated reporting of residual soil nitrogen credits and added reporting of irrigation method. In addition to these two items, our direction departs from the Nitrogen Tracking Task Force's recommendations primarily in the requirement to submit field-level, in addition to aggregated, data to the regional water board.

¹²¹ State Water Board Order WQ 2013-0101, p. 45, fn.103; see also *id.*, p. 28. The relevant code provisions are Water Code, section 13267, subdivision (b)(2), Government Code section 6254, subdivision (k), and Evidence Code section 1060. Our conclusions as to how to address proprietary information in the context of an agricultural regulatory program were not questioned by the Sacramento Superior Court Ruling. We also note that section IX.4 (p.36) of the Eastern San Joaquin Agricultural General WDRs establishes a process by which a Member may assert that all or a portion of a report is exempt from public disclosure.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

frequency of nitrogen applications, rather than data regarding the total amount, was more likely to implicate competitive business practices. The additional information required to be reported here, i.e. the nitrogen removed from the field, does not significantly alter the balance that we must strike between the need for transparency and measurable benchmarks on the one hand, and the need for the agricultural community to protect trade secrets and other sensitive information on the other hand.¹²² We note that the INMP Summary Report contains only specific, limited data that is necessary for use by the Central Valley Water Board for the purposes described above. We are not requiring that the entire INMP be submitted, nor are we requiring that other planning and management documents that Members may develop and use for operational purposes be submitted. Our purpose in requiring submission of field-level AR data to the Central Valley Water Board is to address, in an even-handed, data-driven manner, a crucial water quality and public health issue – nitrates in groundwater – by minimizing over-application of nitrogen to the fields, while at the same time preserving Members' need to manage their operations in accordance with confidential business practices and determinations.

In sum, we find that field-level data should be submitted to the Central Valley Water Board for the reasons we have articulated: to support development of acceptable multi-year A/R ratio target values for crops grown in the Eastern San Joaquin River Watershed, to inform whether implemented nitrogen management practices are reducing the nitrogen that may potentially reach groundwater, and to allow for appropriate oversight over the Third Party's response to the data.

ii. *Data Sets Required to be Reported from the Third Party to the Central Valley Water Board*

While we direct reporting of field-level data, rather than aggregated data, to the Central Valley Water Board, at this early stage in the development of the multi-year AR data framework, we will not require the individual field data to be routinely identified by name or location. We are satisfied that the goals of the program can be carried out effectively if field-level data is linked to anonymous identifiers, with the Third Party withholding name and location data, at least in the early stages of the program. We heard extensive testimony in these proceedings from third parties and growers stressing that the continuation of a third-party framework in

¹²² Under Order WQ-2013-0101, we limited nitrogen reporting to total nitrogen applied because we found that the ratio otherwise required to be reported in the Central Coast Agricultural Order relied on speculative values for crop nitrogen uptake (p. 49). As we have discussed above, the A/R ratio does not suffer from the same deficiency; while development of the appropriate coefficients for calculation for nitrogen removed from the field will require further data gathering and research, once the values are available, the multi-year A/R ratio is expected to be a reasonably accurate representation of nitrogen remaining on the field.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

irrigated lands programs depends in part on an expectation of confidentiality for growers who prefer to interface with a third party rather than the regulatory agency. As we described in Section II.A., we believe and emphasize that third parties serve an extensive set of functions for growers beyond the maintenance of confidentiality, and we are not persuaded that the maintenance of confidentiality, in and of itself, is a legitimate goal of a regulatory program that must have transparency and accountability to the public.

We will, however, proceed cautiously at this time and not require more information than we find is necessary to effectively manage the irrigated lands regulatory program and provide the public with the essential assurance that we are doing so. We will periodically evaluate whether the framework we set out here is, in fact, sufficient to enable the oversight and transparency necessary to ensure measurable progress toward achieving water quality requirements and may require disclosure of name and location data in the future if we find it is not. (See requirement in Section II.A.11 for periodic Central Valley Water Board reporting to the State Water Board on this question.) For now, however, we expect that the value of a fully-functioning third party will more than offset the additional burdens that are associated with receiving data that is largely anonymous.

The Modified Eastern San Joaquin Agricultural General WDRs will require submission by the Third Party of three data sets to the Central Valley Water Board. Examples of the three data sets are attached to this order as sample data Tables 2, 3, and 4, solely for illustrative purposes.

The first data set associates each field with a Member-specific anonymous identifier, the Anonymous Member ID discussed in the section on the Farm Evaluation, and displays the crop grown, the annual A/R ratio, the annual A-R difference, and the three-year A/R ratio, as well as some of the underlying data, on a per acre basis. This data set facilitates comparison of the reported A/R ratio and A-R difference for Members growing the same crop. The data set allows the Central Valley Water Board to verify the Third Party's calculations and analyses with regard to Member performance, and specifically to verify that the Third Party is identifying and following up with Members that are applying nitrogen at substantially higher levels than other Members growing the same crop. Over several years, the data set additionally provides trend data to ensure that Members are adjusting nitrogen application in response to follow up and training efforts.

The second data set associates each field with a location by assigning one or more anonymous location-identifiers tied to the APN for the parcel(s) that the field partially or completely overlays (Anonymous APN ID). Since APNs are not coextensive with fields, each field

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may be associated with more than one Anonymous APN ID and each Anonymous APN ID may be associated with more than one field. This data set also displays the crop grown, the annual A/R ratio, the annual A-R difference, the three-year A/R ratio, as well as some of the underlying data for those numbers as above, on a per acre basis. The purpose of this data set is to track nitrogen application data and its potential impacts with regard to a physical location, where Member data obscures such impacts because Members may be changing the fields they operate from year to year. This data set allows the Central Valley Water Board and stakeholders to flag situations where the A/R ratio and/or A-R difference may be significantly higher than other locations in the short term and higher than acceptable ranges of multi-year A/R ratio values in the long term, providing an indicator of potential nitrate impacts to underlying groundwater. The Central Valley Water Board can then ensure that the Third Party is responding appropriately and that the values associated with the location show a trend toward acceptable nitrogen application values.

The third data set does not utilize anonymous identifiers, but aggregates the data at a township level, similar to the current reporting under the Eastern San Joaquin Agricultural General WDRs. This data set sets out A-R difference data by crop aggregated at the township level, average A/R ratio data by crop at the township level, and some of the underlying data by crop again aggregated at the township level. The purpose of this data set is to provide researchers and other interested persons township-level data to facilitate trend analysis and nitrogen loading modeling.

Taken together, the data reporting set forth above enhances efficacy and accountability, while preserving many benefits of data collection and assimilation by the Third Party. The State Water Board finds that use of the anonymous identifiers and aggregated data as outlined here and set out in the Modified Eastern San Joaquin Agricultural General WDRs retains the privacy protections of the existing order. At the same time, the revisions provide a more detailed set of field-specific data available to the Central Valley Water Board for oversight of the program and provide more transparency and assurance of progress for interested persons outside of the regulatory agency.

In particular, we anticipate that the anonymous field-level data is sufficient for the Central Valley Water Board to verify that implemented management practices are making progress toward achievement of the water quality goals of the program. Where the Central Valley Water Board finds its oversight function requires a more proactive effort, we note that the Central Valley Water Board may at any time request the names and locations corresponding to the

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

anonymous identifiers.¹²³ This option allows the Board to effectively follow up with individual Members where the data indicates that insufficient progress is being made by the Third Party's follow-up efforts with a Member.

In section II.A.11 of this order, we set out our direction to the Central Valley Water Board on how the submitted data shall be utilized.

In addition to submitting the underlying data, we direct the Third Party to evaluate the data, providing comparisons of the A/R ratio and A-R difference by crop type, and within crop type, by irrigation method, soil condition, and farming operation size and other appropriate evaluations as directed by the Executive Officer.

The Third Party is directed to report the data sets set out above in accordance with the schedule set out in Appendix A, Modified Eastern San Joaquin Agricultural General WDRs.

The requirement for field-level AR data submission to the regional water board consistent with the data sets and analysis of those data sets described in this Order shall be precedential for irrigated lands programs statewide. For third-party programs only, the data shall be submitted with anonymous identifiers unless the regional water board finds that there is a compelling grower-specific or location-specific reason why the data should be submitted with name or location identifiers. With regard to the aggregated dataset, the regional water board is not limited to aggregating the data at the township level, but may choose a smaller or larger area unit based on region-specific and program-specific considerations.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VIII.D, p. 34, Attachment B, MRP, section V.D, pages 24-27, section V.E, Report Component (17), pages 29-30.

f. Required Follow-Up

We further revise the Eastern San Joaquin Agricultural General WDRs to require specific actions of the Third Party and of the Member when a Member is determined to be an outlier based on reported AR data.

Outliers will be identified by the Third Party annually based on the INMP Summary Report data submitted for that particular year. Eventually, it is our expectation that outliers will be determined with reference to the ranges for the multi-year A/R ratio and A-R difference target values developed by the Third Party and the Central Valley Water Board. At this early stage, we recognize that the limited data available, as well as the variation in conditions from field to field and from year to year, mean that any definition of outliers is imperfect. We will not specifically

¹²³ Eastern San Joaquin Agricultural General WDRs, § X, p. 36.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

define the term in Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, but will direct the Third Party to propose and the Central Valley Water Board to approve a set of Members with whom the Third Party will follow up. The Third Party may choose to set a standard, approved by the Central Valley Water Board, that it applies annually for a period of years to determine outliers or may propose and seek approval of a specific set each year. A Member will not be identified as an outlier based on high AR data solely due to application of nitrogen in irrigation water.

The Third Party must inform such outlier Members that they are potentially over-applying nitrogen to their fields. Following receipt of notification, these Members must either attend additional INMP self-certification training in person or work with an irrigation and nitrogen management plan specialist for certification of the next INMP prepared following notification. These Members must also report on the next annual INMP Summary Report that they were notified as outliers for reported AR data. The INMP Summary Report will then be expected to reflect additional or improved management practices implemented to address potential over-application of nitrogen.

We continue to believe that the Third Party is best suited (both in terms of expertise and in terms of developed relationships) for the role and responsibility of follow up with Members to address any potential over-application. The Third Party is the lead in outreach and education and as part of that responsibility will be expected to follow up with Members who are outliers for reported AR data. If Third Party follow up does not yield sufficient progress in water quality in the coming years, we will [ask that the Central Valley Water Board](#) reevaluate this approach and consider adding to the program a trigger, such as three consecutive years of high A/R ratios, that will require non-anonymous reporting of that Member to the Central Valley Water Board.

The requirement for follow up and appropriate training for AR data outliers and for identification of repeated outliers as set out above shall be precedential in irrigated lands programs statewide, except that the regional boards will be responsible for the follow up and training for irrigated lands programs that directly regulate growers without a third-party intermediary.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section IV.C.8.c, page 22, section VII.D, page 29; Attachment B, MRP, section V.D, page 24, section VI.B, INMP Component (3), page 33.

6. Recordkeeping Requirements

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The Eastern San Joaquin Agricultural General WDRs require that the Third Party shall maintain any reports and records required for a period of five years. We revise the General WDRs to require maintenance of the reports and records for ten years and to require the Third Party to back up the field-specific data submitted on the Farm Evaluations, the INMP Summary Reports, and the MPIRs in a secure offsite location managed by an independent entity. This requirement is needed because it is critical that the Central Valley Water Board have the ability to access outlier Members' names and locations if warranted at a future date.

This recordkeeping requirement shall be precedential statewide for all third-party irrigated lands programs.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section X, page 40.

7. Surface Receiving Water Monitoring

The Eastern San Joaquin Agricultural General WDRs do not require water quality monitoring of discharges coming off the farms, but require monitoring in the receiving waters. The watershed is divided into six zones. Two "core" sites and several "represented" sites are designated in each zone. ~~In theory~~ According to the General WDRs, the represented sites are sites with characteristics similar to the core sites such that a water quality issue detected at the core site may be an indication of a similar issue at a represented site. The two core sites are continuously monitored on an alternating basis. An exceedance at a core site triggers the requirement to monitor at the represented sites within the same zone, as needed.¹²⁴

The Environmental Petitioners argue that the surface water quality monitoring is ineffective as a feedback mechanism that can tie management practice implementation with the water quality goals of the Eastern San Joaquin Agricultural General WDRs. We took up the question of the appropriate approach to surface water quality monitoring in State Water Board Order WQ 2013-0101. The Central Coast Agricultural Order incorporates both regional receiving water monitoring and, for Tier III discharges, edge-of-farm discharge monitoring. In Order WQ 2013-0101, we declined to revise the surface water discharge monitoring requirements but we also expressed our concerns with the approach:

We are skeptical that the Central Coast Water Board has adopted the monitoring program best suited to meet the purpose of identifying and following up on high-risk discharges. The variability in the composition of end-of-field discharges makes it difficult to characterize such discharges through sampling at a limited number of locations and in a limited number of sampling events. Further, even

¹²⁴ *Id.*, Attach. B, MRP, § III.A, pp. 3-6. The Third Party or the Executive Officer may additionally designate "Special Project Sites" to be monitored as part of a SQMP or to address a TMDL. (*Ibid.*)

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though the surface water discharge monitoring requirements are targeted to the highest risk dischargers, problem discharges and areas are likely to be found outside of the influence of farms operated by Tier 3 dischargers. The better approach may be to rely on receiving water monitoring data and to require the third party monitoring groups administering receiving water monitoring to pursue exceedances with increasingly focused monitoring in upstream channels designed to narrow down and identify the sources of the exceedances.¹²⁵

We presented the question of the appropriate surface water monitoring framework to the Agricultural Expert Panel. The Agricultural Expert Panel agreed that monitoring of surface water discharges from individual fields or farms is costly and complicated, as well as subject to serious challenges in identifying the appropriate timing for periodic sampling and coordinating with shifting field crew operations, pesticide applications, and sediment runoff events, and with schedules for lab operations. The Agricultural Expert Panel Report stated:

For surface water issues, the Panel recommends water quality monitoring of receiving water and a clear understanding of the watershed hydrology. Sufficient samples should be taken in the watershed streams to detect if problems do indeed exist. The sampling should be of sufficient density (spatially and temporally) to identify general locations of possible pollution. This is recommended rather than sampling at each discharge point. For example, a single measurement point at the downstream discharge of a very large watershed would be insufficient. When/if problems are identified, sampling should move upstream to locate the source of the problem.¹²⁶

We continue to believe that receiving water monitoring is generally preferable to field-specific surface water discharge monitoring in irrigated lands regulatory programs for the reasons articulated by us in Order WQ-2013-0101 and by the Agricultural Expert Panel. Receiving water monitoring, ~~if done correctly~~, is a reliable and effective methodology for identifying water quality issues without resorting to more costly end-of-field measurements.

This notwithstanding, having now carefully reviewed the particular surface water monitoring framework established in the Eastern San Joaquin Agricultural General WDRs, we ~~cannot find that it is, in fact~~ believe the question of whether monitoring is, “of sufficient density (spatially and temporally) to identify general locations of possible pollution.” should be evaluated

¹²⁵ State Water Board Order 2013-0101, pp. 37-38. The Sacramento Superior Court Ruling stated with regard to surface water monitoring: “Petitioners have failed to persuade the court that surface discharge monitoring of all discharges is required –or even possible given that there are approximately 435,000 acres of irrigated land and approximately 3000 agricultural operations generating discharges of waste.” (Sacramento Superior Court Ruling at 41.) Although the Ruling held that the State Water Board had struck an appropriate balance in requiring individual surface discharge monitoring for Tier 3 dischargers only, the court did not hold that discharge monitoring for high risk discharges is a required element of a surface water monitoring program. To the contrary, the court held that “both the Water Code and the NPS policy expressly allow the use of cooperative or watershed-based monitoring. . . While individual monitoring might provide more information, it would be complicated, costly, and would threaten to overwhelm Regional Board staff.” (*Ibid.*)

¹²⁶ Agricultural Expert Panel Report, p. 41.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

~~as part of an external audit conducted by an independent third-party reviewer. The “representative monitoring” approach should also be evaluated as part of the audit, with logical conclusions and recommendations provided. The General WDRs rely not on regional or watershed-based sampling, but on “representative monitoring.” The Third Party monitors only a few “core” sites, asserted to be representative of “represented” sites elsewhere in the watershed. The Third Party proceeds to monitor the represented sites only if a core site has an exceedance.~~

There are two ~~problems~~ issues that should be addressed when judging the ~~with this~~ representative monitoring approach: First, is there information to support the premise that in theory, because when the core site and the represented sites have similar hydrology, crop type, land use, soil type, and rainfall, and are assumed to be managed similarly, ~~an exceedance a~~ water quality problem identified at ~~the~~ a core site would be indicative of ~~an exceedance the same water quality problem~~ at the represented site. ~~But the data does not bear this out. As an example, an~~ Our limited examination of the reported monitoring data shows suggests that monitoring at a represented site reveals exceedances for a different set of pollutants than the monitoring at the core site that triggered the requirement for sampling the represented site in the first place. Our limited review found monitoring at represented sites reveal exceedances for a different set of constituents than those found at the core sampling sites, even where thought the physical characteristics are similar. This could be explained by the explained by the lapse of time between the sample collection events or, due to the changing and non-persistent nature of agricultural activities, other activities were taking place at the time of the different sampling events, or the constituents found at the represented sites were not related to agricultural practices. It could also suggest the monitoring program may need to be revised. - Even where the physical characteristics of a core site and a represented site are similar, We believe agree ~~this~~ the monitoring program approved by the Central Valley Water Board is meant to also capture human behavior in management practices, beyond just physical site characteristics, and the data suggests that there is enough variability in field-by-field practices to yield significantly varied monitoring results from core sites to represented sites. We also recognize, however, that nonpoint source, diffuse discharges from agricultural operations are unpredictable and constituent concentrations change rapidly in surface waters. We understand the Central Valley Water Board has instituted a process and framework, and works with the coalition, local experts, and other interested parties to develop the program. An example of this is the Pesticide Monitoring Protocol. This protocol was developed with DPR, local experts, stakeholders, board staff, and thorough public input. The protocol will further increase monitoring efficiencies and creates a living approach for considering the multitude of pesticides and breakdown products that may be discharged. The framework is adaptive,

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

science based, and rooted in stakeholder and public input. We have also reviewed the monitoring design guidance prepared in 2007 to support the Central Valley irrigated lands regulatory program and believe that, in its current form, an external audit of the surface water monitoring program strays from should also examine whether the program is consistent with the recommended approach this guidance.¹²⁷

~~Second, it is not clear that, even collectively, the core and represented monitoring sites have sufficient spatial density or distribution to be able to reasonably identify exceedances throughout the watershed.~~

~~The approach taken by the Eastern San Joaquin Agricultural General WDRs may be effective in monitoring for a narrower set of purposes, such as determining the effectiveness of a certain set of management practices, but it does not appear to be~~ it is unclear whether the surface water monitoring program is comprehensive enough to identify problem areas throughout the watershed. We recognize that water quality monitoring at core and represented sites is supplemented by additional, potentially upstream, monitoring under an SQMP, when triggered. But the problem is that a SQMP may not be triggered until an exceedance is detected at a core or represented site, and water quality exceedances upstream or in an adjacent portion of the watershed to that of the core and represented sites may go undetected in the interim.¹²⁸ However, because the framework generally triggers management follow-up at the watershed level, it would also lead to higher level of practice implementation throughout an entire area and higher resultant water quality than if a more granular approach identified a specific area of concern and only implement management practices in a specific location. In this situation, the Central Valley Water Board has elected to spend higher resources in encouraging management practice implementation versus requiring resources to exactly locate a water quality concern.

The Nonpoint Source Policy does not require any particular framework for monitoring and does not necessarily even require comprehensive ambient monitoring. But the nonpoint source implementation program must “include sufficient feedback mechanisms so that the [regional water board], dischargers, and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different [management practices] or other actions are required.”¹²⁹ ~~The representative monitoring of the General WDRs does not appear to~~

¹²⁷ Monitoring Design Guidance for the Central Valley Irrigated Lands Regulatory Program, October 2007, available at http://www.waterboards.ca.gov/rwqcb5/water_issues/irrigated_land/water_quality/monitoring_design_guidance_20_nov07.pdf >.

¹²⁸ Eastern San Joaquin Agricultural General WDRs, § VIII.H.1, p. 33.

¹²⁹ Nonpoint Source Policy, p. 13.

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~~In coming to this conclusion, w~~We are cognizant of the argument, advanced by the Central Valley Water Board and the East San Joaquin Water Quality Coalition, that the current surface water monitoring provisions of the General WDRs reflect a studied decision by the Central Valley Water Board to ~~reduce-balance~~ the Third Party's monitoring costs ~~in favor of~~ with the need to increaseing funds for management practice implementation. At least in one respect, we support this compromise. In Order WQ-2013-0101, as quoted above, we stated that an effective receiving water monitoring program must pursue exceedances in upstream channels and narrow down the source of the exceedances. The General WDRs ~~eschew this framework in favor of~~ requireing management practice improvements ~~by of all~~ Members who are identified as potential sources of discharges in the affected watershed. We find that this approach is reasonable in the first couple of iterations of attempts to correct exceedances, although identification of individual sources should be required if improvements are not sufficient.¹³⁰ In other respects, we are not confident that the balance between monitoring on the one hand and increased funding for management practice implementation on the other hand has been appropriately struck. The General WDRs must ensure that existing and developing water quality problems are in fact detected and subsequently corrected and must provide for sufficient density of monitoring to achieve that purpose.

Unlike with all other provisions of the Eastern San Joaquin Agricultural General WDRs, we will not make the specific revisions to the Surface Water Monitoring provisions of the General WDRs in this Order. We will instead direct the Central Valley Water Board staff to arrange and oversee an external audit of the surface water monitoring program to be performed by a qualified independent third-party. We expect the external audit to address the following issues: ~~convene a panel of experts to make recommendations on a framework for surface receiving water monitoring to inform irrigated lands programs statewide. We expect the panel to be charged with answering the following questions, which may evolve as the State Water Board, through its Office of Information Management and Analysis, develops the project proposal for the expert panel:~~

¹³⁰ We note that the Agricultural Expert Panel also set an expectation that monitoring would move upstream to identify sources as needed. (Agricultural Expert Panel Report, p. 41.)

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

- ~~Is the current monitoring framework of sufficient density (spatially and temporally) to identify general locations of possible pollution. What are the management decisions that need to be answered by monitoring and data assessment in the irrigated lands program?~~
- ~~Is the representative monitoring strategy a technically sound approach for identifying water quality problems related to discharges from irrigated agriculture? What criteria should be applied to evaluate whether a site is representative? How should a monitoring program be designed to provide defensible data for the relevant management decisions, yet recognize the need to control the costs of monitoring and assessment? Topics should cover temporal and spatial monitoring design, analyte selection, analytical methods, data analysis, and synthesis.~~
- What processes for evaluating monitoring program effectiveness could be implemented for continuous improvement?
- What new monitoring and assessment tools and technologies are relevant to the irrigated lands program and how can the water boards acquire the tools and knowledge to use them?
- ~~Do the current monitoring and reporting program requirements constitute a sufficient feedback system to verify that appropriate management practices are being proposed and implemented?~~
- ~~Is the system adequate to determine if a correlation between management practices implemented, monitoring and reporting data, and water quality requirements exists? What skills and knowledge do water board staff need to manage the irrigated lands monitoring and assessment program?~~
- ~~How can data submittal consistency and accessibility be improved?~~
- ~~How do the conclusions and recommendations of the expert panel inform other regulatory programs with a landscape scale requirement for monitoring and assessment such as programs for forestry and grazing? Do they have applicability to other Water Board programs such as the Stream Pollution and Trends program?~~

We expect the ~~panel external third-party review~~ to ~~be composed of members include scientists~~ having knowledge, skills, and abilities to address the following topics of needed expertise, ~~which may evolve as the State Water Board, through its Office of Information Management and Analysis, develops the project proposal for the expert panel:~~

- Landscape-based water quality modeling: Expertise in predictive modeling of potential contamination using pesticide use reports, soil, weather, and crop information to help determine chemical, temporal, and spatial potential for contamination and effect
- Agronomy: Expertise on cultural practices, pest management, BMPs, soil, plant, and nutrient information
- Data science and statistics: Expertise to ensure that the monitoring design is a targeted design and to enable analysis of existing data from the program to determine variability in support of the temporal and spatial design of the program
- Toxicology, biology, chemistry: Expertise to address selection of test methods and test species appropriate for the chemicals selected to be monitored, including some expertise

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

on the fate and transport of these particular elements in the typical receiving waters of California.

~~Once convened, the expert panel will report to the State Water Board on the monitoring and program data needed to inform the expert panel's review and determinations. The Executive Director of the State Water Board may then issue a monitoring and reporting program order under Water Code section 13267 to the Eastern San Joaquin Coalition and to other third parties in the irrigated lands programs requesting the data recommended by the expert panel.~~ In the interim, the Central Valley Water Board and the Third Party shall continue to implement the existing program.

8. Groundwater Quality Monitoring

The Eastern San Joaquin Agricultural General WDRs contain a set of requirements for groundwater quality monitoring and management practice assessment and evaluation. The General WDRs first require preparation of a Groundwater Quality Assessment Report, which provides a baseline for groundwater quality conditions in the watershed by assessing all existing data.¹³¹ Second, the General WDRs require implementation of a Management Practice Evaluation Program in which targeted studies are conducted to evaluate management practices that are protective of groundwater quality.¹³² Third, the General WDRs require Groundwater Quality Trend Monitoring, based on sampling of a network of existing wells, to determine current and long-term regional groundwater quality trends.¹³³

We add to the groundwater monitoring provisions of the Eastern San Joaquin Agricultural General WDRs a set of monitoring and reporting requirements designed specifically to address identification of on-farm drinking water supply wells with nitrate concentrations that are detrimental to public health. We then make several revisions to the Groundwater Quality Assessment, Management Practice Evaluation Program, and Groundwater Quality Trend Monitoring provisions of the General WDRs, but these modifications are comparatively minor.

a. Drinking Water Well Monitoring

Nitrates consumed at concentrations above the MCL of 10 milligrams per liter (mg/L) of nitrate+nitrite as N¹³⁴ can pose serious health risks to pregnant women and infants. In State Water Board Order WQ 2013-0101 we recognized the importance of making accurate, reliable nitrate concentration data available to the consumers of well water and established a

¹³¹ Eastern San Joaquin Agricultural General WDRs, Attach. B, MRP, § IV.A, pp.13-15.

¹³² *Id.*, Attach. B, MRP, § IV.B, pp. 15-17.

¹³³ *Id.*, Attach. B, MRP, § IV.C, p.17.

¹³⁴ As stated previously, the MCL is also expressed as 45 mg/L of nitrate as NO₃.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

framework where the nitrate concentration for every drinking water well was determined through existing data, direct sampling, or a statistically valid projection, and where users were notified of exceedances. We now add drinking water well monitoring provisions to the Eastern San Joaquin Agricultural General WDRs similar to those established for the Central Coast by Order WQ 2013-0101.

The new provisions require Members to initially sample all on-farm drinking water supply wells for nitrate concentrations annually. In lieu of one or more annual samples, the Member may rely on drinking water supply well sampling data available from any time within the prior five years. Where existing data or sampling data indicates that the nitrate concentration was below 8 mg/L for three consecutive annual sampling events, the member may thereafter sample every five years instead of annually. An alternative sampling schedule may be required by the Executive Officer at any time. Results of the drinking water supply well monitoring must be submitted by the laboratory directly to GeoTracker. Results of any existing sampling data must be reported to GeoTracker directly by the Member.

The new provisions require that users receive notification if a drinking water well exceeds 10 mg/L of nitrate+nitrite as N. The Member must provide notice to users within ten days of the exceedance and send a copy of the notice to the Central Valley Water Board. Where the Member is not the property owner, the Member may choose to provide the notice or instead pass on the results to the property owner within 24 hours of learning of the exceedance; the property owner must then notify the users within nine days of the exceedance and copy the Central Valley Water Board.¹³⁵ The State Water Board expects that the Central Valley Water Board will, where appropriate, act promptly to require the Member to provide users with safe drinking water for consumption [consistent with the proposals currently being developed through the CV-SALTS initiative](#).

Unlike in Order WQ 2013-0101, where we permitted a statistically valid projection of well nitrate levels, with this order we require actual sampling of all wells. The ultimately unsuccessful effort to characterize drinking water supply wells through representative monitoring under the Central Coast Agricultural Order has borne out that obtaining a statistically valid projection for nitrates is a subjective and problematic process in the absence of an extensive set of data points. We conclude that, given the public health risk associated with drinking water that

¹³⁵ Finding 2 of the Eastern San Joaquin Agricultural General WDRs states that enforcement action for non-compliance may be taken against both the owner and the operator, even when the owner is not enrolled as a Member.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments. exceeds the MCL levels, the only way to ensure that public health is fully protected is to require sampling of every drinking water supply well.¹³⁶

[We are aware that the Central Valley Water Board is currently working on salt and nitrate control program-related basin plan amendments that will ultimately provide safe drinking water to nitrate impacted communities and groundwater users through discharger resources. These amendments are projected to go into effect in late 2018 or early 2019.](#) We are also aware of ongoing discussions and proposals among interested persons to address drinking water well contamination and the provision of replacement water through legislation that would more broadly address private drinking water supply wells, not only on-farm drinking water supply wells, as the Modified Eastern San Joaquin Agricultural General WDRs does. In order to allow some time for consideration of legislative proposals, the requirements for on-farm drinking water well monitoring will not take effect, if, prior to January 1, 2019, the State Water Board determines that the legislature has established a comprehensive statewide program that assures that private drinking water wells will be routinely monitored for nitrate contamination and users of those wells will be notified of the results.

The Environmental Petitioners argue that the Eastern San Joaquin Agricultural General WDRs disproportionately impact low-income communities and communities of color, are discriminatory, and are null and void by virtue of denying enjoyment of those communities' residence, landownership, and tenancy, because Latino and low-income communities are more likely to have drinking water contaminated by nitrates and less likely to have access to health care, treatment, or substitute water sources.¹³⁷ With the revisions we have made to the General

¹³⁶ In June 2015, Senate Bill 83 amended Water Code section 13752 to mandate public access to well completion reports. Well completion reports are required to be filed with the Department of Water Resources (DWR) for all groundwater wells at the time that they are constructed. The reports are required to contain information regarding each well's location and construction, and the lithology of the subsurface, among other items. As a result of the amendment, all well completion reports are available to the public, except that personal information (e.g., an individual's name and address) must be redacted. In the past, the State Water Board has obscured from public view in its online groundwater information systems, including GeoTracker, the precise locations of water supply wells for public water systems and some private domestic wells by providing a randomly-generated point within approximately one mile of the well's precise location. In addition, the State Water Board's Division of Drinking Water has not released records that identify the precise location of water supply wells used by public water systems. Since well completion reports, including information about the location of the wells, are now publicly available by request from DWR, we announced our decision that, as of January 10, 2017, we will no longer obscure public water system groundwater well location information on our online groundwater information systems or withhold other records that identify the precise location of water supply wells used by public water systems. With this Order, we extend our decision to all other groundwater wells. Henceforth, we will cease obscuring the location of any groundwater wells, absent exceptional circumstances. Not only is this consistent with the Legislature's clear policy direction regarding the transparency of groundwater data, it also helps to facilitate efforts by governmental agencies and nongovernmental organizations to identify individuals and communities that are in need of infrastructure and replacement water supplies, and general research regarding groundwater quality.

¹³⁷ See Gov't Code, §§ 11135, 12900 et seq., & 65008.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

WDRs, including the additional drinking water well monitoring provisions added with this section, we find that the discharges of waste authorized by the General WDRs will not disproportionately impact or discriminate against Latino and low-income communities, or deny their enjoyment of their residences, property, or tenancy. We make this finding in particular because the Modified Eastern San Joaquin Agricultural General WDRs require (1) calculation and reporting of field-level AR data; (2) implementation and reporting of management practices where the Member is identified as having a significantly higher than average multi-year A/R ratio in order to reduce over-application of nitrogen; (3) monitoring of on-farm drinking water supply wells to determine if they exceed public health standards; (4) prompt notification of users if a well exceeds public health standards. Further, although Water Code section 106.3, by its terms, does not apply to the issuance of a water quality order, it is appropriate for us to consider the human right to water in this context,¹³⁸ and we find that our adoption of the order supports the basic human right “to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes,” expressed in Water Code section 106.3, for the same reasons articulated in this paragraph.

In sum, after January 1, 2019, Members must initiate sampling of private drinking water supply wells located on their property. The requirements of this section will not take effect if, prior to January 1, 2019, the State Water Board determines that the legislature has established a comprehensive statewide program that assures that private drinking water wells will be routinely monitored for nitrate contamination and users of those wells notified of the results.

The requirement for on-farm drinking water supply well monitoring shall be precedential statewide.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VII.E, p. 30, section VIII.E.1, page 34; Attachment B, MRP, section IV.A, pages 14-15.

b. Groundwater Quality Assessment Report

The Groundwater Quality Assessment Report, which serves the purpose of providing the technical basis informing the scope and level of effort for implementation of the General WDRs groundwater monitoring and implementation provisions, was approved by the Central Valley Water Board on December 14, 2014. We make no revisions to the requirements at this point.

¹³⁸ See State Water Board Order WQ 2013-0101, pp. 67-68.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

The preparation of a Groundwater Quality Assessment Report shall not be precedential statewide.

c. *Management Practice Evaluation Program*

The scope and purpose of the Management Practice Evaluation Program (MPEP) has evolved since the adoption of the Eastern San Joaquin Agricultural General WDRs and is continuing to evolve. We are reluctant to make any significant revisions to the MPEP requirements so that the Central Valley Water Board retains continued flexibility to refine the program. We expect that the MPEP will initially focus on the determination of the crop-specific coefficients for conversion of yield to nitrogen removed and then on the determination of acceptable ranges for the multi-year A/R ratio target values by crop.

We further expect the MPEP will help identify specific management practices appropriate for specific conditions to assist Members in minimizing surface water and groundwater impacts, particularly in areas with SQMPs and GQMPs. We revise the MPEP to require study of management practice effectiveness in all areas, not just areas designated as high vulnerability areas, although we explicitly acknowledge that prioritization may be based on the high vulnerability determination. The Central Valley Water Board stated as follows in a comment letter submitted in response to a February 8, 2016, draft of this order, which had proposed removal of the high/low vulnerability distinctions:

[T]he Central Valley Water Board does not oppose abolishing the high/low vulnerability distinction and is not disputing the State Water Board's rationale for doing so. The Central Valley Water Board has found that the high/low vulnerability distinction in the exiting General WDRs has become problematic because only Members within high vulnerability areas are required to participate and fund the MPEP . . . , even though the Board intended for these activities to be funded by all Members. Removing the designation would therefore allow the obligations to be funded in a more equitable manner.¹³⁹

In response to other comments we received, we reinstated the high/low vulnerability distinctions in the Eastern San Joaquin Agricultural General WDRs generally with this order, but we will remove them for purposes of the MPEP requirements.

¹³⁹ Comment Letter, Central Valley Water Board, June 1, 2016, p. 17, available at <http://www.swrcb.ca.gov/public_notices/comments/a2239ac/patrick_pulupa.pdf> (as of Oct. 6, 2017). The comment letter implies that the same concern may apply to the Groundwater Quality Trend Monitoring Program, but we read the requirements for that program as not limited to high vulnerability areas.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

We also require that any groundwater monitoring data supporting the Management Practice Evaluation Program be collected through shallow groundwater monitoring because shallow groundwater exhibits a more rapid response to practices on the field.¹⁴⁰

The MPEP requirements shall not be precedential statewide.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VIII.E.3, p. 35, Attachment B, MRP, section IV.E, pp. 20-21.

d. Groundwater Quality Trend Monitoring

In addition to nitrate+nitrite as N, the Groundwater Quality Trend Monitoring provisions require monitoring for conductivity, pH, dissolved oxygen, temperature, total dissolved solids, and general minerals.¹⁴¹ The Environmental Petitioners have asked us to expand the list of constituents further and argue specifically that the Groundwater Quality Trend Monitoring constituents should include pesticides and degradation products from pesticides.¹⁴² We will not expand the monitoring constituents to include pesticides and degradation products from pesticides where the Central Valley Water Board can rely instead on the monitoring conducted by the Department of Pesticide Regulation (DPR) for data on these constituents. We address that issue through a revision to the GQMP provisions under section II.9. However, we direct the Central Valley Water Board to consider adding monitoring for parameters that are not covered by DPR but are known groundwater contaminants associated with agriculture, in particular 1,2,3-TCP and DBCP.

The requirement for groundwater quality trend monitoring shall be precedential statewide; however, the specific requirements and the monitored constituents specified in the General WDRs shall not be precedential.

e. The Multi-Year A/R Ratio and A-R Difference as Indicators of Nitrogen Loading to Groundwater

¹⁴⁰ We define shallow groundwater as groundwater located less than ten feet below the soil surface. As we discuss below, the Agricultural Expert Panel Report found that groundwater quality monitoring will not provide useful data for purposes of evaluating the effectiveness of above-ground practices, except in very limited circumstances. (Agricultural Expert Panel Report, p. 8.) Monitoring of shallow groundwater constitutes the scenario in which the data is most likely to be meaningful. We note that the Agricultural Expert Panel's conclusions were with regard to impacts associated with farming, and not with impacts from other potentially more concentrated sources, such as holding ponds at dairies.

¹⁴¹ Eastern San Joaquin Agricultural General WDRs, Attach. B, MRP, § IV.E, pp. 19-20.

¹⁴² The Groundwater Quality Trend Monitoring constituents specified in the Eastern San Joaquin Agricultural General WDRs are conductivity, pH, dissolved oxygen, temperature, nitrate as N, total dissolved solid, and general minerals. (*Id.*, Attach. B, MRP, table 3, pp. 19-20.) In addition to advocating for addition of pesticides and degradation products from pesticides to that list, the Environmental Petitioners argue that the Groundwater Quality Trend Monitoring constituents should include deleterious minerals. On this point, we agree with the Central Valley Water Board's conclusion that the presence of nitrates at elevated levels (plus general minerals) serves as an indicator of other potential problems associated with irrigated agricultural discharges. (*Id.*, Attach. A, Information Sheet, p. 15.)

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It is important to note in our discussion of groundwater quality monitoring that the role of groundwater quality monitoring in any agricultural regulatory program is primarily one of trend monitoring. Groundwater quality monitoring does not yield data responsive enough to above-the-ground impacts to allow correlation of management practices and water quality outcomes, except under very limited conditions. The Agricultural Expert Panel stated that monitoring of first-encountered groundwater as an indication of the effectiveness of above-ground practices is meaningful only in a context where “sampled groundwater volume can be attributed to a defined recharge area, which must be contained within the area where the regulated discharge occurs” and further that such attribution is meaningful primarily in “areas of very shallow groundwater tables, relatively steady groundwater flow directions, high recharge, large regulated units, and a strong introduced discharge signal.”¹⁴³ Where these conditions are present, there are opportunities for studies of management practice effectiveness, as with the Management Practice Evaluation Program of the General WDRs. But another tool is needed to track the effectiveness of implemented practices in reducing discharges to groundwater under a broader set of regional conditions. Although one such tool may be conducting a soil profile analysis by monitoring soil samples for presence of constituents of concern, obtaining a statistically significant number of samples on an annual basis would be prohibitively expensive.

In contrast, the multi-year A/R ratio, analyzed in concert with the A-R difference, is both a cost-effective and a reliable methodology for tracking the amount of nitrogen left in the soil over a period of time, and that may enter the groundwater from the soil. Trends in the multi-year A/R ratio are expected to follow changes in management practices on the field, providing a reliable indication of whether management practices are working to increase efficiency in nitrogen application and to reduce the potential for nitrogen loss to groundwater. The A-R difference further informs the magnitude of any potential over-application of nitrogen. The multi-year A/R ratio and the A-R difference are thus appropriate metrics for determining measurable progress toward ensuring agricultural discharges are not causing or contributing to exceedances of water quality standards in the groundwater. The information obtained through the multi-year A/R ratio and A-R difference in a given area may also subsequently be matched with the groundwater quality trend monitoring data to evaluate and verify the results and conclusions of the methodology.

The AR data is, of course, specific to nitrogen impact, and the groundwater monitoring provisions of the Eastern San Joaquin Agricultural General WDRs consider impacts

¹⁴³ Agricultural Expert Panel Report, p. 8.

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from a wider set of constituents and remain an indispensable component of the regulatory program. However, with regard to nitrogen, we expect the multi-year A/R ratio and A-R difference to be the primary tools for management, reporting, and oversight going forward.

The agricultural representatives and environmental justice organization representatives who presented the compromise proposal for data reporting to us also proposed development of a methodology for determining targets for nitrogen loading on a township by township basis. The group has committed to working on the proposal and we welcome their input. We direct the East San Joaquin Coalition to develop a project scope and timeline to further flesh out the proposal, in consultation with the Central Valley Water Board, for approval within two years of the adoption of this Order.

9. Surface Water and Groundwater Quality Management Plans

Under the Eastern San Joaquin Agricultural General WDRs, the Third Party proposes and implements a SQMP or GQMP in an area in response to certain triggers indicative of water quality problems related to agricultural discharges to surface water or groundwater. Once triggered, a SQMP or GQMP must have a specific schedule of management practices and tasks to be implemented to achieve compliance with receiving water limitations and a monitoring system designed to measure whether management practice changes are in fact effective at achieving the requirements of the General WDRs.¹⁴⁴ In general, we do not disturb these provisions because we find that the triggers are appropriate for identifying areas in which additional or alternative management practice implementation and additional monitoring, above and beyond the baseline conditions of the General WDRs, is necessary to address exceedances.¹⁴⁵ In the previous section, we declined to expand groundwater monitoring constituents to include pesticides and degradation products from pesticides, but indicated that we would instead rely on data collected by DPR on pesticide impacts. That data is available in GeoTracker.¹⁴⁶ We will add to General WDRs a clarification that a GQMP may be triggered based on exceedances detected through monitoring programs outside the scope of the Eastern San Joaquin Agricultural General WDRs provisions. We will additionally direct that the Executive

¹⁴⁴ Eastern San Joaquin Agricultural General WDRs., Attach. B, MRP, Appen. MRP-1, §§ I.C-D, pp. 4-6.

¹⁴⁵ The triggers for the preparation of SQMPs and GQMPs are based on the same criteria as the high vulnerability determinations. Although we have found that the baseline requirements of the General WDRs should be applied uniformly, for purposes of prioritizing areas for additional management practices, the criteria are appropriate.

¹⁴⁶ Although the DPR data in GeoTracker is not available by precise location, the exceedances are correlated with a small enough area to be appropriate as a trigger for a GQMP. See also discussion of DPR's groundwater quality monitoring program at Eastern San Joaquin Agricultural General WDRs, Attachment A, Information Sheet, p. 17.

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Officer consider the State Water Board Hydrogeologically Vulnerable Areas and the DPR

Groundwater Protection Areas when determining if an area should be subject to a GQMP.¹⁴⁷

The SQMP and GQMPs are primary vehicles for requiring implementation of new and improved management practices under the General WDRs, but reporting on practices implemented with the SQMP and GQMP lacks specificity.¹⁴⁸ The Third Party is directed to report “a summary of management plan grower outreach conducted” and a “summary of the degree of implementation of management practices.”¹⁴⁹

We add a provision to the SQMP and GQMP to make the requirement to report the degree of implementation of management practices more explicit. Members in a SQMP and/or GQMP areas shall submit a Management Practice Implementation Report (MPIR) to the Third Party at least annually, laying out new or improved management practices implemented to address the particular water quality issues identified in the area. The Third Party will prepare an appropriate form specific to each SQMP or GQMP with appropriate reporting frequency based on the implementation cycle of the applicable management practices. For the SQMP and the GQMP already approved by the Central Valley Water Board, submission of MPIRs shall commence in 2019. Similar to the submission associated with the Farm Evaluations, the Third Party will submit a data set based on the MPIRs to the Central Valley Water Board with Anonymous Member IDs and Anonymous APN IDs.¹⁵⁰

SQMPs and GQMPs shall not be precedential statewide.

The directed revisions are indicated at Appendix A, Modified Eastern San Joaquin Agricultural General WDRs, section VIII.H., pages 36-37 and footnotes 35-36; Attachment B, MRP-1.

10. Monitoring and Reporting Requirements and Water Code Section 13267

¹⁴⁷ Appen. A, Modified Eastern San Joaquin Agricultural General WDRs, § VIII.H.2, pp. 37-38.

¹⁴⁸ Over the next several years, we expect that improvements made in response to a high multi-year A/R ratio, rather than in response to a GQMP, to become the primary vehicle for implementing improved management practices addressing nitrate impacts. However, the GQMP, or an equivalent approach, will continue to have a significant role in agricultural regulatory programs in addressing impacts from pollutants other than nitrates. There may also be some fields in areas with conditions -- soil types and depth to groundwater -- that lead to nitrate impacts even with a low multi-year A/R ratio. In those cases, programs would have to rely on the GQMP or an equivalent approach to require improved practices in the area.

¹⁴⁹ Eastern San Joaquin Agricultural General WDRs, Attach. B, MRP, Appen. MRP-1, § I.F, p. 6.

¹⁵⁰ We recognize that the Eastern San Joaquin Agricultural General WDRs currently require the Third Party to identify, as part of its annual Membership List submission, Members who have failed to implement improved water quality management practices within the timeframe specified by an applicable SQMP or GQMP. (*Id.*, § IV.C.9, p. 21.) This already required information is significant in that it allows the Central Valley Water Board to follow up with or take enforcement against Members in violation of the SQMP or GQMP requirements, but it does not replace the need for a broader set of data, including data for management practices implemented under a SQMP or GQMP as well as in the absence of a SQMP or GQMP, to support effective program implementation.

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The revisions we have directed in the above sections modify many of the monitoring and reporting requirements of the General WDRs. Water Code section 13267 states that “[t]he burden, including costs, of [monitoring and reporting] shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” This order revises the monitoring and reporting requirements of the General WDRs primarily as follows:

For Members:

1. Members in high vulnerability areas must submit a Farm Evaluation only every five years instead of annually;
2. Members in a SQMP or GQMP areas must submit management practice implementation information to the Third Party on the MPIR;
3. Members must include irrigation management practice information and other irrigation-associated data and nitrogen management practice information in the INMP and the INMP Summary Report (previously reported on the Farm Evaluation);
4. Members in low vulnerability areas must now obtain certification of the INMP and submit INMP Summary Reports (these requirements are phased in to allow additional time for Members exempt under the General WDRs);
5. Members who do not have existing sampling data must sample on-farm drinking water supply wells annually for at least three years; some Members may be required to provide notification of high nitrate levels.

For the Third Party:

1. The Third Party must develop unique Anonymous Member IDs and Anonymous APN IDs and maintain and track the IDs from year to year;
2. The Third Party must submit to the Central Valley Water Board management practice implementation data reported on the MPIRs by Anonymous Member ID;
3. The Third Party must submit to the Central Valley Water Board management practice implementation data reported on the Farm Evaluations and INMP Summary Reports by Anonymous Member ID;
4. The Third Party must identify and develop coefficients for conversion of yield into nitrogen removed;
5. The Third Party must calculate values for each field for nitrogen removed, A/R, A-R, and multi-year A/R;
6. The Third Party must submit to the Central Valley Water Board the data it receives from the INMP Summary Reports and from its calculations by Anonymous Member ID, by anonymous APN ID, and by township;
7. The Third Party must arrange for storage of field-specific data submitted in a secure offsite location managed by an independent entity.

The increased costs for the Third Party may be passed onto the Members in the form of higher membership fees.

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We received comments on a February 8, 2016, draft of this order estimating projected increased costs based on the revisions to the monitoring and reporting provisions proposed in that draft.¹⁵¹ We made a number of additional revisions in response to the comments to the provisions to minimize some of the potential cost increases. We now find that, while there will be an additional burden due to the revised monitoring and reporting requirements as compared to the existing requirements in the General WDRs, that additional burden bears a reasonable relationship to the benefits to be obtained from the expanded monitoring and reporting requirements.

With regard to revisions to the reporting of management practice implementation data, we find that, for Members in high vulnerability areas, the reporting burden is actually decreased by reduction of Farm Evaluation submission from annually to every five years, although some management practice implementation data will continue to be reported on the INMP Summary Report annually and, where applicable on the MPIR, according to a schedule to be determined by the Third Party. For Members in low vulnerability areas, irrigation practices and nitrogen practices must now be reported annually through the INMP Summary Report, which we consider below.

The costs with regard to nitrogen application reporting do not change for Members in high vulnerability areas. Members in low vulnerability areas have to prepare an INMP under the existing General WDRs. Under our revisions, they will be required to have the INMP certified; however, Members have the option of self-certification after attending an approved training program. Based on comments received, professional certification for a farm ranges in cost from \$1,500 to \$4,500 based on size.¹⁵² Self-certification ranges from \$440 to \$960, which represents

¹⁵¹ Comments on the February 8, 2016 draft are available at http://www.swrcb.ca.gov/public_notices/comments/a2239ac/ > (as of Oct. 6, 2017). Comments presenting cost projections include, but are not limited to: Patrick Pulupa, Central Valley Water Board, pp. 17-19 (June 1, 2016) (Central Valley Water Board Comment Letter); Theresa Dunham, Somach Simmons & Dunn on behalf of East San Joaquin Water Quality Coalition, pp. 36-39 (June 1, 2016) (East San Joaquin Coalition Comment Letter); William Thomas, Best Best & Krieger on behalf of the Southern San Joaquin Valley Water Quality Coalition, pp. 22-25 (May 3, 2016); Ed Sills, Placer-Nevada-South Sutter-North Sacramento Subwatershed Group, pp. 2-3 (April 22, 2016); Nicole Bell, Kern River Watershed Coalition Authority, pp. 18-22 (May 30, 2016) (Kern River Coalition Comment Letter). In addition, several speakers at scheduled public workshops (see, e.g. Jennifer Markarian, Cost Notes, (May 17, 2016) available at https://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2239/workshops/markarian.pdf > (as of Oct. 6, 2017)) and a number of parties meeting with Board members in disclosed ex parte meetings (see, e.g. Theresa Dunham, Somach Simmons & Dunn, on behalf of California Rice Commission, Ex Parte Disclosure (Sept. 12, 2016) available at http://www.swrcb.ca.gov/public_notices/petitions/water_quality/docs/a2239/ex_parte/exparteseptember12.pdf > (as of Oct. 6, 2017) (September 12, 2016, Rice Commission Submission) presented cost information.

¹⁵² These costs are estimated based on data provided in the Kern River Coalition Comment Letter, Table 1, p. 19.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

a range of hourly salaries for eight hours for a Member's employee to attend the training class.¹⁵³

Members in low vulnerability areas must now also submit an INMP Summary Report to the Third Party. The INMP Summary Report primarily requires transferring data already recorded in the INMP to a separate sheet. We estimate that Summary Report preparation represents between two and eight hours of Member employee time, with a cost range of \$110 to \$960.

While Members will incur some additional direct compliance costs, the increased workload associated with field-level reporting of management practice information and AR data will be borne primarily by the Third Party, which, we recognize, must pass on its increased costs to Members in the form of membership fees. Increased costs will be due to additional staff for outreach and training, especially in low vulnerability areas, increased costs of mailings, the work associated with assigning anonymous identifiers to field-level data and compiling the data sets, cost of the secure, off-site storage of the data, and other expenses. In comments submitted on the February 8, 2016, draft, the East San Joaquin Coalition estimated that a similar set of requirements would lead to an annual cost increase in the range of \$310,000, which, according to our rough calculations translates to a 10% increase in the Coalition's annual budget and would result in a similar increase in Member fees.¹⁵⁴ We acknowledge that this is not an insignificant increase in costs. We note, however, that the applicable requirements will not be phased in completely until 2021, allowing the Third Party an opportunity to ramp up slowly and consider the most cost-effective approaches as the program develops.

Members will incur new costs for on-farm drinking water well sampling. That cost is estimated based on two to four hours of a Member's employee's time with a cost range of \$110 to \$480, and \$40 in sampling costs per well. Not all farms have drinking water supply wells and it is anticipated that the bulk of the farms that do will have only one well. We also note that these costs will be incurred beginning in 2019 only if a legislative solution to drinking water well monitoring is not in place prior to that date.

¹⁵³ The hourly salary range used in this calculation is based on a low of \$55 per hour (September 12, 2016 Rice Commission Submission) and a high of \$120 per hour (Kern River Coalition Comment Letter, Table 1, p. 19).

¹⁵⁴ These figures represent a rough estimate based on figures provided in the East San Joaquin Coalition Comment Letter at pages 36-39. Expenses projected in that comment letter that are no longer relevant include individual well data management. The entry of field-level data into Geotracker is also no longer a requirement under this order; however, we have retained \$25,000 of those costs in the calculations to account for the Third Party's work in preparing and submitting electronic data tables to the Central Valley Water Board. In addition, the costs representing the addition of a professional to assist members with self-certification and INMP requirements is deducted from the East San Joaquin Coalition estimates because the costs are already assigned to the Members above.

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The Central Valley Water Board also submitted cost projections in response to the February 8, 2016, draft, based on increased staffing needs.¹⁵⁵ The Central Valley Water Board stated that such increased regulatory costs would result in higher annual waste discharge permit fund fees for Members. One significant driver of increased staffing predicted by the Central Valley Water Board was the workload associated with providing notification to users of on-farm drinking water supply wells with exceedances. That draft requirement applied only where the Member was not the owner of the irrigated lands. In response, we replaced the requirement for the Central Valley Water Board to provide notification with a requirement that the non-Member owner provide such notification if requested by the operator. Another driver of increased staffing needs was projected to be the work to compile paper submissions of field-level data. This order makes it clear that all field-level data will be submitted to the Central Valley Water Board in an electronic format. With regard to review of the field-level data, the Central Valley Water Board's role at this point is to review the data to facilitate oversight of Third Party analyses and follow up determinations. We expect the sortable and searchable nature of the data to allow more efficient review, to focus the Central Valley Water Board's evaluation of Member compliance and oversight over Third Party activities, and to facilitate measurement of progress towards improved water quality. We find that the review is achievable within existing Central Valley Water Board staffing resources and does not add to existing workload associated with oversight of the regulatory program.¹⁵⁶

While we acknowledge above that Members will incur additional costs, under our revisions to the Eastern San Joaquin Agricultural General WDRs, the additional burden bears a reasonable relationship to the burden of the new monitoring and reporting requirements. These benefits have been discussed at length in the sections above. In brief summary, the data reported is expected to be used as follows:

- The multi-year A/R ratio will provide the Member and the Third Party with a reliable metric for any field-level nitrogen over-application and will more effectively target Third Party follow up for potential nitrate impacts, facilitating water quality improvements.
- The multi-year A/R ratio will provide the Member with an efficiency metric that can be used to support cost-savings in nitrogen application. The inclusion of irrigation management

¹⁵⁵ Central Valley Water Board Comment Letter, pp. 17-19.

¹⁵⁶ As discussed, we also revised the outreach requirements of the General WDRs such that Members in low vulnerability areas, like members in high vulnerability areas, must now participate in outreach events annually. These are not strictly monitoring and reporting requirements but costs should nevertheless be considered consistent with other provisions of the Water Code. (Wat. Code §§ 13241, 13263.) To minimize any increases in costs, we additionally revised the outreach requirements to make it clear that Members could participate remotely, as well as phased in the outreach requirements for low vulnerability areas so that they are effective only after two years.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

practice implementation reporting in the INMP may additionally improve efficiency in irrigation water usage.

- The field-level anonymous management practice implementation data and AR data will allow the Central Valley Water Board and stakeholders to verify that the Third Party is following up with appropriate Members and that the Members are implementing improved practices in response to the follow up.
- The field-level anonymous AR data will allow the Central Valley Water Board and stakeholders to verify that the Third Party's summary analyses accurately represent conditions and trends.
- The field-level anonymous AR data will enable the Central Valley Water Board to determine appropriate multi-year A/R ratio ranges by crop for potential incorporation into future regulatory programs.
- The Central Valley Water Board will be able to correlate management practice implementation data from the INMP Summary Report and MPIR with AR data for use in statistically valid analyses to identify effective and ineffective management practices to reduce nitrate loading.
- The township level AR data set will be available to researchers to perform watershed-based modeling for nitrate groundwater loading, both within the Third Party boundaries and in the entire basin (by using data from other coalitions).
- The township-level AR data set will be available to researchers to conduct relevant studies that may help advance the science supporting future developments in the regulatory program, to local agencies to support groundwater quality management efforts, and to cities, counties, and non-governmental organizations to aid in anticipating areas, especially disadvantaged communities, that may need drinking water assistance.
- The drinking water well data will allow for notification of users consuming drinking water with nitrate levels above the public health standards.

11. ~~Direction to Central Valley Water Board Regarding Use of Submitted Data and Direction to the Central Valley Water Board~~

As a result of the revisions we have directed in the above sections, the Central Valley Water Board will receive several data sets commencing in May of 2019, in addition to the water quality monitoring data submitted to the Central Valley Water Board under the existing Eastern San Joaquin Agricultural General WDRs: a data set with management practice implementation reported by Members on the Farm Evaluation, INMP Summary Report, and MPIR, three data sets with AR data reported by Members on the INMP Summary Report, one associated with Anonymous Member IDs, one associated with Anonymous APN IDs, and one associated with townships. ~~We direct the Central Valley Water Board to use the data in several specific ways~~ It is expected the Central Valley Water Board will use the data collected to: -

~~First, the Central Valley Water Board is directed to use the data to~~

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

1) ~~verify~~ Verify the accuracy and completeness of the analyses and summaries submitted by the Third Party based on the Farm Evaluations and the INMP Summary Reports. ~~Second, the Central Valley Water Board is directed to use the data to~~

2) ~~confirm~~ Confirm that the Third Party is appropriately following up with its Members, including those who are AR data outliers, those failing to implement appropriate management practices, and those that fail to timely submit required reports, and

3) ~~Third, the Central Valley Water Board is directed to m~~Make the anonymous field-level data tables available to researchers and stakeholders to support studies and analyses, including modeling of nitrate loading to groundwater.

~~Finally, we~~We direct the Central Valley Water Board, in consultation with the Third Party and other coalitions formed under the Central Valley irrigated lands regulatory program, CDFA and other appropriate parties, to evaluate the AR data submitted by the Third Party for the purposes of developing acceptable ranges for the multi-year A/R ratio target values for crops grown in the Eastern San Joaquin River Watershed. The Central Valley Water Board is directed to develop, in coordination with the State Water Board, and other regional water boards and CDFA, target values for each crop within three years of the availability of the nitrogen removed coefficient for that crop. It is expected that the multi-year A/R ratio target values will be further refined over time for different conditions (e.g., irrigation method, soil conditions) for each crop.

The Central Valley Water Board is directed to report ~~annually~~ to the State Water Board ~~commencing no later than~~ September 1, 2020, on data received and progress toward identifying effective management practices and developing acceptable ranges for multi-year A/R ratio target values until the targets are developed. Additional briefings and reporting may be requested at the discretion of the State Board or their Executive Director. To the extent stakeholders proceed on the proposal to develop township level targets for nitrogen loading, the Central Valley Water Board shall include discussion of progress on that proposal in its ~~annual~~ report. ~~Commencing on~~

By September 1, 2022, ~~and every two years thereafter~~, the Central Valley Water Board shall ~~also~~ report to the State Water Board on whether anonymous field-level reporting is providing sufficient information for oversight of and progress in the regulatory program. Additional briefings and reporting may be requested at the discretion of the State Board or their Executive Director.

It is premature at this point to project the manner in which the multi-year A/R ratio target values might serve as regulatory tools. That determination will be informed by the data collected and the research conducted in the next several years. The multi-year A/R ratio should

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12. Summary

We have directed significant revisions to the Eastern San Joaquin Agricultural General WDRs in the above discussions. With those revisions, the Modified General WDRs have the following key components:

1. The Modified General WDRs require compliance with receiving water limitations that prohibit discharges from causing or contributing to an exceedance of applicable water quality objectives, unreasonably affecting applicable beneficial uses, or causing or contributing to a condition of pollution or nuisance. The Members must show immediate compliance with the receiving water limitations except where the Member is implementing a SQMP or a GQMP for specified waste parameters in accordance with an approved time schedule.
2. The Modified General WDRs' first step in achieving compliance with the receiving water limitations is to impose baseline requirements on all Members:
 - Members must implement management practices that minimize waste discharge offsite in surface water, minimize percolation waste to groundwater, and protect wellheads from surface water intrusion. Members plan and document the management practices by preparing a Farm Evaluation, an Erosion and Sediment Control Plan, and an INMP. Members participate in outreach activities to learn about management practice options.
 - Members report these management practices at the field level through submission of the Farm Evaluation and the INMP Summary Report to the Third Party. The INMP Summary Report also reports on the AR data of the Member by field.
3. The Modified General WDRs' second step in achieving compliance with the receiving water limitations is to impose additional requirements on Members where there are indications of water quality problems:
 - Where a Member is an AR data outlier, the Member must to obtain additional training or employ an expert for certification of the INMP.
 - Where surface water or groundwater quality monitoring required to be conducted by the Third Party shows an exceedance, the Third Party must prepare a SQMP or GQMP that imposes additional management practice implementation requirements on Members in the area.
4. The Modified General WDRs' third step in achieving compliance with the receiving water limitations is to verify that implemented management practices are effective in addressing water quality problems.

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

- The Third Party submits the field-level data from the Farm Evaluations and the INMP Summary Reports to the Central Valley Water Board with anonymous identifiers.
- The field-level data sets allow the Central Valley Water Board to verify that Members are implementing additional management practices and that such implementation is leading to either an improved multi-year A/R ratio or improved water quality results.
- The field-level data sets additionally allow the Central Valley Water Board to verify that the Third Party is identifying the appropriate set of Members for follow up and additional requirements.
- Finally, the township-level data sets allow the Central Valley Water Board to predict trends in water quality, both potential degradation and improvement, and to associate the trends with management practice implementation so that a more complete set of information regarding the effectiveness of management practices and of the program as a whole is available.

We find that the approach in the Modified Eastern San Joaquin Agricultural General WDRs complies with the Water Code and of the Nonpoint Source Policy. The Modified General WDRs require compliance with receiving water limitations, but accomplish that compliance through implementation of management practices and through implementation of improved management practices where Members are not in compliance with the receiving water limitations. The Modified General WDRs ensure that the Third Party and the Central Valley Water Board have the feedback mechanism needed to link management practice implementation to water quality results so that the effectiveness of the management practices required can be verified. As a result, we find that there is a high likelihood that the Modified Eastern San Joaquin Agricultural General WDRs will lead to attainment of the receiving water limitations.

B. Compliance with the Antidegradation Policy

The Environmental Petitioners argue that the Central Valley Water Board failed to comply with the Antidegradation Policy in many respects when it adopted the Eastern San Joaquin Agricultural General WDRs. As explained above, several of these contentions are more appropriately considered under the rubric of compliance with the Water Code and the Nonpoint Source Policy in Section II.A of this order. By its terms, the Antidegradation Policy applies only to waters that are high quality; it supplements the Water Code requirements discussed above by adding additional antidegradation requirements that apply if the receiving waters are considered to be high quality. We will discuss the Environmental Petitioners' remaining arguments that relate only to high quality waters in this section.

High quality waters are those surface waters or areas of groundwater that have a baseline water quality better than required by water quality control plans and policies. The

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Antidegradation Policy required the Central Valley Water Board to issue WDRs that maintain the high quality of those waters unless it finds that any degradation of water quality (1) will be consistent with maximum benefit to the people of the state; (2) will not unreasonably affect present or probable future beneficial uses of such water; and (3) will not result in water quality less than prescribed in water quality control plans or policies. In addition, the WDRs must require that discharges to high quality waters result in the best practicable treatment or control necessary to assure that no pollution or nuisance will occur and the highest water quality consistent with the maximum benefit to the people of the State will be maintained. We have already addressed the requirements to not unreasonably affect beneficial uses, not result in water quality less than the quality specified by water quality objectives, and not cause a pollution or nuisance in Section II.A, above. While we found merit in several of the Environmental Petitioners' contentions discussed above and accordingly made several modifications to the General WDRs, we find no merit in the remainder of their contentions discussed below. To the contrary, we find that the Central Valley Water Board properly identified and complied with the remaining requirements of the Antidegradation Policy when it adopted the Eastern San Joaquin Agricultural General WDRs.

1. Application of Antidegradation Policy to Nonpoint Source Discharges

The State Water Board has, to date, provided relatively little specific direction to the regional water boards on how to apply the Antidegradation Policy to nonpoint sources.¹⁵⁷ The Nonpoint Source Policy's only reference to the Antidegradation Policy simply states that nonpoint source control implementation programs must be designed to meet water quality requirements, which include "water quality objectives established to protect beneficial uses and any higher level of water quality needed to comply with the State's antidegradation policy."¹⁵⁸ We recently explained that a traditional antidegradation analysis for a discrete point source discharge has limited value when considering antidegradation in the context of storm water discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a region.¹⁵⁹ These same practical considerations also make it inappropriate to apply a discrete point source discharge approach in the context of a general order regulating both surface water and groundwater discharges from irrigated agriculture operations across a large

¹⁵⁷ As correctly noted by the Central Valley Water Board, Administrative Procedures Update 90-004 applies to discharges regulated under the federal Clean Water Act's National Pollutant Discharge Elimination System. It does not apply to nonpoint source discharges. *Asociacion de Gente Unida por el Agua v. Central Valley Water Board*, *supra*, 210 Cal.App.4th at 1270.

¹⁵⁸ Nonpoint Source Policy, p.12, AR 36151.

¹⁵⁹ State Water Board Order WQ 2015-0075 (*Los Angeles MS4*), p.27.

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landscape.¹⁶⁰ The Central Valley Water Board included an excellent synopsis of relevant existing guidance, and appropriate findings, regarding the application of the Antidegradation Policy to the Eastern San Joaquin General WDRs in Attachment A.¹⁶¹ We concur with that synopsis, which is generally applicable to all nonpoint source general orders, and also augment it by further addressing specific nonpoint source antidegradation issues below.

2. Baseline Water Quality

The baseline water quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of the Antidegradation Policy, or a lower level if that lower level was allowed through a permitting action that was consistent with applicable antidegradation policies.¹⁶² The Environmental Petitioners contend that the Central Valley Water Board's assessment of baseline water quality throughout the area regulated by the General Order is too general and vague. We disagree.

When assessing baseline water quality for a general order, we find a general review and analysis of readily available data is sufficient. Regional water boards need not generate new data or take extraordinary steps to search for existing data. It is unusual to find substantial amounts of high quality historical data from the 1970's and 1980's, let alone 1968, for such extensive areas as those covered by the Central Valley Water Board's Eastern San Joaquin Agricultural General WDR. While new ambient surface water and groundwater quality data are constantly being produced, there will always be substantial data gaps. Generation and synthesis of new data to fill all these gaps would be time intensive and costly, delaying the ultimate implementation of what would likely be a vastly similar program with or without the data. If existing data has already been synthesized or analyzed, or can be done so with minimal effort, then the regional water boards should consider those syntheses or analyses. Regional water boards should not delay the implementation of a regulatory program in order to conduct a comprehensive baseline assessment and analysis – especially where, as here, the general order imposes essentially the same iterative approach for management practices and other requirements regardless of whether or not the receiving water is high quality.

In almost all cases, it will be impossible for the regional water boards to establish an accurate numeric baseline for potentially hundreds of waterbodies and dozens of waste

¹⁶⁰ The diffuse, landscape level groundwater discharges regulated under the Eastern San Joaquin Agricultural General WDRs are unlike the concentrated discharges from dairy retention ponds and corral areas that were the subject of *Asociacion de Gente Unida por el Agua v. Central Valley Water Board*, *supra*, 210 Cal.App.4th 1255.

¹⁶¹ Eastern San Joaquin Agricultural General WDRs, Attachment A, Information Sheet, pp. 31-44. Due to its length, we decline to reprint it here. The synopsis is included in Appendix A to this order.

¹⁶² State Water Board Order WQ 2015-0075, p.24.

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constituents in an area covered by a general order. Instead, regional water boards must conduct a general assessment of the existing water quality data that is reasonably available. Here, the Central Valley Water Board appropriately assessed thousands of surface water and groundwater data points and concluded that at least some of the surface waters and groundwater in the Eastern San Joaquin River watershed were high quality. Based on this finding, the Central Valley Water Board acted appropriately by then conducting a general antidegradation analysis for the General WDRs.

3. Maximum Benefit

The Central Valley Water Board appropriately found that the degradation allowed¹⁶³ by the General WDRs is consistent with the maximum benefit to the people of the state.¹⁶⁴ The Programmatic Environmental Impact Report for the Central Valley Irrigated Lands Regulatory Program supports this finding, noting that the state depends on Central Valley agriculture for food and that Central Valley communities rely on agriculture for employment.¹⁶⁵ The Central Valley Water Board considered social costs of the discharges and reasonably concluded that the General WDRs' requirements to address all exceedances of water quality objectives according to the terms of a time schedule, implement best practicable treatment and control where irrigated agricultural waste discharges may cause degradation, and the inclusion of performance standards that work to prevent further degradation of surface and groundwater quality, should ensure that local communities not incur any additional treatment costs associated with the limited degradation authorized by their Order. As discussed above, while dischargers are working to comply with the time schedule, if monitoring of drinking water supply wells indicates that MCLs are being exceeded, we expect dischargers that are causing or contributing to the exceedance to provide replacement water to the affected population. Given that the considerable societal benefits outweigh the costs associated with the effects of irrigated agriculture under the Modified General WDRs, any degradation allowed by the Modified General WDRs is consistent with the maximum benefit to the people of the state.

4. Best Practicable Treatment or Control

The Environmental Petitioners argue that the General WDRs fail to demonstrate that discharges to existing high quality waters will result in best practicable treatment or control.

¹⁶³ Contrary to the Environmental Petitioners' assertion, the General WDRs do not automatically authorize all surface waters and groundwater to become degraded up to the water quality objectives. The General WDRs include requirements that dischargers implement management practices that minimize waste discharge offsite in surface water and minimize percolation waste to groundwater, among other requirements.

¹⁶⁴ Eastern San Joaquin Agricultural General WDRs, Attachment A, p. 43.

¹⁶⁵ Programmatic EIR, Appendix A, AR 31907-32232.

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The General WDRs require farm evaluations for all Members and development of management plans when trends indicate degradation is threatening beneficial uses.¹⁶⁶ Management plans will evolve over time as monitoring and other feedback leads to new practices being developed and refined as part of the Management Practice Evaluation Program that the General WDRs require. The General WDRs require Members to implement practices found to be protective of groundwater through the Management Practice Evaluation Program. In addition, use of the multi-year A/R ratio will be required in the Modified General WDRs as it will drive the implementation of more effective management practices over time and identify management practices that are less effective. The Modified General WDRs also require implementation of irrigation and nitrogen management plans and use of the multi-year A/R ratio in conjunction with the other management practices required by the Modified General WDRs. We find that these requirements, in combination with the other key components of the Modified General WDRs described in Section II.A., satisfy the best practical treatment or control standard. Not only do these requirements represent the present best approach in the view of our Expert Panel, we are not aware of any more protective requirements for large scale irrigated agricultural operations elsewhere.

III. ORDER

For the reasons discussed in this order:

1. The Central Valley Water Board shall post and circulate a revised version of the Eastern San Joaquin Agricultural General WDRs as indicated in redline/strike-out format in Appendix A, and also incorporating the Central Valley Water Board's amendments dated February 19, 2016.
2. ~~Commencing on~~No later than September 1, 2020, the Central Valley Water Board shall report ~~annually~~ to the State Water Board on data received and progress toward identifying effective management practices and developing acceptable ranges for multi-year A/R ratio target values. ~~Commencing on~~By September 1, 2022, ~~and every two years thereafter,~~ the Central Valley Water Board shall ~~also~~ report to the State Water Board on whether anonymous field-level reporting is providing sufficient information for oversight of and progress in the regulatory program. Additional briefings or reporting may be requested at the discretion of the State Water Board or their Executive Director.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on _____.

¹⁶⁶ Eastern San Joaquin Agricultural General WDRs, §§ III.B, pp. 24-25, VIII.H.2, pp.33-34, and Attachment A, pp. 41-42.

SECOND D R A F T

10/10/17

This version of the October 10, 2017, Second Staff-Proposed Order has been provided to commenters in Microsoft Word, with all revisions accepted, upon their request for purposes of preparation of written comments.

AYE:

NO:

ABSENT:

ABSTAIN:

DRAFT

Jeanine Townsend

Clerk to the Board

[Attachment 2a](#)

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

**ORDER R5-2012-0116, REVISION 4
(referred to herein as ORDER R5-2012-0116-R4)**

**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
GROWERS WITHIN THE EASTERN SAN JOAQUIN RIVER WATERSHED
THAT ARE MEMBERS OF THE THIRD-PARTY GROUP**

TABLE OF CONTENTS

[note that the pagination is inaccurate due to track changes]

Findings	1
I. Coverage	17
II. Prohibitions	17
III. Receiving Water Limitations.....	17
A. Surface Water Limitations.....	17
B. Groundwater Limitations	18
IV. Provisions	18
A. General Specifications	18
B. Requirements for Members of the Third-Party Group	18
C. Requirements for the Third-Party Group	21
V. Effective Dates.....	22
VI. Permit Reopening, Revision, Transfer, Revocation, Termination, and Reissuance	23
VII. Required Reports, Monitoring, and Notices – Member	24
A. Notice of Confirmation / Notice of Intent / Membership Application	24
B. Farm Evaluation.....	25
C. Sediment and Erosion Control Plan	26
D. Irrigation and Nitrogen Management Plan, Data Supporting Nitrogen Applied/Removed Ratio, and Nitrogen Applied-Removed Difference.....	27
E. Drinking Water Supply Well Monitoring.....	29
F. Mitigation Monitoring.....	30
G. Management Practice Implementation Reporting in Surface and Groundwater Quality Management Areas.....	30
H. Notice of Termination.....	30
VIII. Required Reports and Notices – Third-Party	30
A. Application to Serve as a Third-Party Representing Members.....	30
B. Membership (Participant) List	31
C. Templates	31
D. Annual Report on Management Practice Implementation and Nitrogen Application	33
E. Groundwater Quality Monitoring and Protection	33
F. Sediment Discharge and Erosion Assessment Report	35
G. Surface Water Exceedance Reports.....	35
H. Monitoring Report.....	35
I. Surface Water/Groundwater Quality Management Plan (SQMP/GQMP)	35
J. Technical Reports	38

K. Notice of Termination.....38
L. Total Maximum Daily Load (TMDL) Requirements38
IX. Reporting Provisions.....38
X. Record-keeping Requirements39
XI. Annual Fees.....40
XII. Time Schedule for Compliance40

Figure 1. Map of the Eastern San Joaquin River Watershed Area.42

- Attachment A: Information Sheet
- Attachment B: Monitoring and Reporting Program Order (contains appendices)
- Attachment C: CEQA Mitigation Measures
- Attachment D: Findings of Fact and Statement of Overriding Consideration
- Attachment E: Definitions, Acronyms, and Abbreviations

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

Order R5-2012-0116-R4

**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
GROWERS IN THE EASTERN SAN JOAQUIN RIVER WATERSHED
THAT ARE MEMBERS OF THE THIRD-PARTY GROUP**

The California Regional Water Quality Control Board, Central Valley Region (hereafter, Central Valley Water Board or board), finds that:

Findings

SCOPE AND COVERAGE OF THIS ORDER

- 1 This Order serves as general waste discharge requirements (WDRs) for waste discharges from irrigated lands (or “discharges”) that could affect ground and/or surface waters of the state. The discharges result from runoff or leaching of irrigation water and/or stormwater from irrigated lands. Discharges can reach waters of the state directly or indirectly.¹
- 2 This Order applies to owners and operators of irrigated lands within the Eastern San Joaquin River Watershed. Either the owner or operator may enroll an irrigated lands parcel under this Order. The owners or operators that enroll the respective irrigated lands parcels are considered members of the third-party representing this area (hereinafter “Members”). The Member is required to provide written notice to the non-Member owner or operator that the parcel has been enrolled under the Order. Enforcement action by the board for non-compliance related to an enrolled irrigated lands parcel may be taken against both the owner and operator.
- 3 The Eastern San Joaquin River Watershed is bounded by the crest of the Sierra Nevada Mountain Range to the east, the Stanislaus River to the north, the San Joaquin River to the west, and the San Joaquin River Basin boundary to the south as identified in the Sacramento and San Joaquin River Basin Plan. This area is referred to as the “Order watershed area” or “third-party area” in this Order. See Figure 1 for a map of the third-party area.

There are some locations within the Eastern San Joaquin River Watershed where it may be more effective for owners and operators of irrigated lands that are not “Members” to enroll under an irrigated lands regulatory program (ILRP) order that recognizes a different third-party representative. Growers are only required to obtain coverage under one ILRP order.

- 4 “Irrigated lands” means land irrigated to produce crops or pasture used for commercial purposes including lands that are planted to commercial crops that are not yet marketable

¹ Definitions for “waste discharges from irrigated lands,” “waste,” “groundwater,” “surface water,” “stormwater runoff,” and “irrigation runoff,” as well as all other definitions, can be found in Attachment E to this Order. It is important to note that irrigation water, the act of irrigating cropland, and the discharge of irrigation water unto itself is not “waste” as defined by the Water Code, but that irrigation water may contain constituents that are considered to be a “waste” as defined by Water Code section 13050(d).

(e.g., vineyards and tree crops). Irrigated lands also include nurseries, and privately and publicly managed wetlands.

- 5 This Order is not intended to regulate water quality as it travels through or remains on the surface of a Member's agricultural fields or the water quality of soil pore liquid within the root zone.²
- 6 This Order does not apply to discharges of waste that are regulated under other Water Board issued WDRs or conditional waiver of WDRs. If the other Water Board WDRs/waiver of WDRs only regulates some of the waste discharge activities (e.g., application of treated wastewater to crop land) at the regulated site, the owner/operator of the irrigated lands must obtain regulatory coverage for any discharges of waste that are not regulated by the other WDRs/waiver. Such regulatory coverage may be sought through enrollment under this Order or by obtaining appropriate changes in the owner/operator's existing WDRs or conditional waiver of WDRs.
- 7 This Order implements the long-term ILRP in the Eastern San Joaquin River Watershed. The long-term ILRP has been conceived as a range of potential alternatives and evaluated in a programmatic environmental impact report (PEIR).³ The PEIR was certified by the Central Valley Water Board on 7 April 2011; however, the PEIR did not specify any single program alternative. The regulatory requirements contained within this Order fall within the range of alternatives evaluated in the PEIR. This Order, along with other orders to be adopted for irrigated lands within the Central Valley, together will constitute the long-term ILRP. Upon adoption of this Order, Order R5-2006-0053, Coalition Group Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Coalition Group Conditional Waiver), is rescinded as applied to irrigated lands within the Eastern San Joaquin River Watershed. Existing Members that had previously enrolled under the Coalition Group Conditional Waiver will be enrolled under this Order upon timely submittal of a Notice of Confirmation (see section VII.A of this Order).

GROWERS REGULATED UNDER THIS ORDER

- 8 This Order regulates both landowners and operators of irrigated lands from which there are discharges of waste that could affect the quality of any waters of the state. In order to be covered by this Order, the landowners or operators must be Members. Because this Order regulates both landowners and operators, but does not require enrollment of both parties, the provisions of this Order require that the Member provide notification to the non-Member responsible party of enrollment under this Order. The third-party group representing Members will assist with carrying out the conditions of this Order. Both the landowner and operator are ultimately responsible for complying with the terms and conditions of this Order.
- 9 The third-party entity proposing to represent Members in the Order watershed area (the third-party) is required to submit to the Central Valley Water Board an application to represent growers within this Order's coverage area. The third-party representation will become effective upon Central Valley Water Board Executive Officer approval of the third party's

² Water that travels through or remains on the surface of a Member's agricultural fields includes ditches and other structures (e.g., ponds, basins) that are used to convey supply or drainage water within that Member's parcel or between contiguous parcels owned or operated by that Member.

³ ICF International. 2011. *Irrigated Lands Regulatory Program, Program Environmental Impact Report*. Final and Draft. March. (ICF 05508.05.) Sacramento, CA. Prepared for: Central Valley Regional Water Quality Control Board, Sacramento, CA

application. The East San Joaquin Water Quality Coalition served as the third-party group representing owners and operators of irrigated lands within the Order watershed area during the interim irrigated lands regulatory program, Order R5-2006-0053 (Coalition Group Conditional Waiver).

- 10 The third-party will be responsible for fulfilling the regional requirements and conditions (e.g., surface and groundwater monitoring, regional management plan development and tracking) of this Order and associated Monitoring and Reporting Program Order R5-2012-0116-R4 (MRP). By retaining its third-party membership or establishing a new membership, a Member is agreeing to be represented by the third-party for the purposes of this Order. Any requirements or conditions not fulfilled by the third-party are the responsibility of the individual Member. The Member and non-Member owners and operators are responsible for conduct of operations on the Member's enrolled property.
- 11 To apply for coverage under this Order, a grower that is not a current Member in the third-party group will have different application requirements depending on the timing of its request for regulatory coverage (see section VII.A of this Order for specific requirements). Growers that enroll within 120 days of Executive Officer approval of the third-party will enroll under this Order by obtaining membership in the third-party group. This will streamline the initial enrollment process for the bulk of the irrigated agricultural operations within the Eastern San Joaquin River Watershed. Growers who do not enroll within 120 days of Executive Officer approval of the third-party, or whom are prompted to apply by Central Valley Water Board enforcement or inspection, are required to submit a Notice of Intent (NOI) to comply with the terms and conditions of this Order to the Central Valley Water Board and obtain membership with the third-party group. This additional step for late enrollees is intended to provide incentive for growers to enroll promptly. There will be an administrative fee for submitting an NOI to the board. The fee will help recover costs for board efforts to conduct outreach to ensure growers subject to this Order enroll or submit reports of waste discharge.

REASON FOR THE CENTRAL VALLEY WATER BOARD ISSUING THIS ORDER

- 12 The Eastern San Joaquin River Watershed region has approximately one million acres of cropland under irrigation and approximately 3,900 growers with "waste discharges from irrigated lands," as defined in Attachment E to this Order. Currently, approximately 165,000 acres are regulated under the Water Board's General Order for Existing Milk Cow Dairies (R5-2007-0035) and 538,121 acres are regulated under the Coalition Group Conditional Waiver. Approximately 3,600 growers and 835,000 associated irrigated acres will require regulatory coverage under this Order or other WDRs or conditional waivers of WDRs. Small Farming Operations are those with a total farming operation that comprises less than 60 acres of irrigated land. In counties within the Eastern San Joaquin River Watershed, Small Farming Operations are operated by approximately 61 percent of the growers, but account for approximately 6% of the total irrigated lands.⁴
- 13 The Eastern San Joaquin River Watershed region contains all or portions of seven groundwater sub basins and has approximately 3,000 linear miles of surface water courses (including 700 linear miles of named surface water courses) that are, or could be, affected by discharges of waste from irrigated lands. This does not include surface water courses in the foothill and mountainous regions of the third-party area, where there are few irrigated lands

⁴ Data are for Madera, Mariposa, Merced, Stanislaus, and Tuolumne Counties; United States Department of Agriculture. 2007. *Census of Agriculture*.

operations. Discharges of waste from irrigated lands could adversely affect the quality of the “waters of the state,” as defined in Attachment E to this Order.

- 14 Within the third-party area, there are approximately 359,000 acres of irrigated lands within Department of Pesticide Regulation (DPR) Groundwater Protection Areas (GWPA)s. DPR identifies these areas as vulnerable to groundwater contamination from the agricultural use of certain pesticides, based upon either pesticide detections in groundwater or upon the presence of certain soil types (leaching and/or runoff) and a depth to groundwater shallower than 70 feet. Of the 359,000 acres, approximately 236,000 acres of the irrigated lands are within DPR GWPA)s that are characterized as vulnerable to leaching of pesticides (leaching areas), approximately 120,000 acres are within GWPA)s that are characterized as vulnerable to movement of pesticides to groundwater by runoff from fields to areas where they may move to groundwater (runoff areas), and 2,510 acres of irrigated lands are characterized as both leaching and runoff areas. For leaching areas, certain water soluble pesticides are carried mainly with excess irrigation water or rainwater through the soil profile and potentially to the underlying aquifer. For runoff areas, certain water soluble pesticides are carried mainly with runoff over the land surface to potential conduits to groundwater. However, DPR has not established or analyzed the GWPA)s with fertilizers and nitrate in mind, and its GWPA)s are established based upon detections of certain pesticides, many of which are of lower solubility. Solubility is one factor that can lead to groundwater contamination. Depending on the frequency of application and amount applied, certain water soluble constituents, such as nitrate, may share common pathways to groundwater with soluble pesticides. This Order includes consideration of DPR’s vulnerability factors and GWPA)s by the third-party in the determination of high vulnerability areas for nitrate.
- 15 The Central Valley Water Board’s *Irrigated Lands Regulatory Program Existing Conditions Report* (ECR)⁵ identifies waters of the state with impaired water quality attributable to or influenced by irrigated agriculture, including within the third-party area. The *Irrigated Lands Regulatory Program Environmental Impact Report* (PEIR) describes that “[f]rom a programmatic standpoint, irrigated land waste discharges have the potential to cause degradation of surface and groundwater...”
- 16 Approximately 25 water bodies encompassing 450 linear miles of surface water courses have been listed as impaired pursuant to Clean Water Act section 303(d)⁶ within the third-party area. Approximately 15 of those water bodies identify the potential source of the impairment as agriculture, and the remaining water bodies identify an unknown source of impairment. For example, Berenda Creek, Berenda Slough, Deadman Creek, Dry Creek, Duck Slough, Harding Drain, Highline Canal, Merced River, Mustang Creek, San Joaquin River, Stanislaus River, and the Tuolumne River are listed as impaired by the pesticide chlorpyrifos. Agriculture is identified as the potential source of impairment.
- 17 Elevated levels of nitrates in drinking water can have significant negative health effects on sensitive individuals. The Basin Plan contains a water quality objective for nitrate to protect the drinking water uses. The water quality objective for nitrate is the maximum contaminant level (MCL) of 10 mg/L for nitrate plus nitrite as nitrogen (or 45 mg/L of nitrate as nitrate) established by the California Department of Public Health (22 CCR § 64431) that has been set

⁵ California Regional Water Quality Control Board, Central Valley Region, and Jones and Stokes. 2008. *Irrigated Lands Regulatory Program Existing Conditions Report*. Sacramento, CA.

⁶ 2008-2010 303(d) List.

at a level to protect the most at risk groups – infants under six months old and pregnant women.⁷

In some areas, nitrate from both agricultural and non-agricultural sources has resulted in degradation and/or pollution of groundwater beneath agricultural areas in the Central Valley.⁸ Available data (see Information Sheet and the PEIR) indicate that there are a number of wells within the Eastern San Joaquin River Watershed that have exceeded the MCL for nitrate. Groundwater in the Eastern San Joaquin Watershed has been designated for drinking water uses; therefore, the water quality objective of 10 mg/L for nitrate plus nitrite (as nitrogen) applies to groundwaters in the Eastern San Joaquin River Watershed. Where nitrate groundwater quality data are not available, information on the hydrogeological characteristics of the area suggest that significant portions of the Eastern San Joaquin River Watershed are vulnerable to nitrate contamination. Sources of nitrate in groundwater include leaching of excess fertilizer, confined animal feeding operations, septic systems, discharge to land of wastewater, food processor waste, unprotected well heads, improperly abandoned wells, and lack of backflow prevention on wells.

- 18 The Central Valley Water Board's authority to regulate waste discharges that could affect the quality of the waters of the state, which includes both surface water and groundwater, is found in the Porter-Cologne Water Quality Control Act (California Water Code Division 7).
- 19 Water Code section 13263 requires the Central Valley Water Board to prescribe WDRs, or waive WDRs, for proposed, existing, or material changes in discharges of waste that could affect water quality. The board may prescribe waste discharge requirements although no discharge report under Water Code section 13260 has been filed. The WDRs must implement relevant water quality control plans and the Water Code. The Central Valley Water Board may prescribe general waste discharge requirements for a category of discharges if all the following criteria apply to the discharges in that category:
 - a. The discharges are produced by the same or similar operations.
 - b. The discharges involve the same or similar types of waste.
 - c. The discharges require the same or similar treatment standards.
 - d. The discharges are more appropriately regulated under general requirements than individual requirements.

The rationale for developing general waste discharge requirements for irrigated agricultural lands in the Eastern San Joaquin River Watershed includes: (a) discharges are produced by similar operations (irrigated agriculture); (b) waste discharges under this Order involve similar types of wastes (wastes associated with farming); (c) water quality management practices are similar for irrigated agricultural operations; (d) due to the large number of operations and their contiguous location, these types of operations are more appropriately regulated under general rather than individual requirements; and (e) the geology and the climate are similar, which will tend to result in similar types of water quality problems⁹ and similar types of solutions.

- 20 Whether an individual discharge of waste from irrigated lands may affect the quality of the waters of the state depends on the quantity of the discharge, quantity of the waste, the quality

⁷ See, for example, the California Department of Public Health Nitrate Fact Sheet: <http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Nitrate/FactSheet-Nitrate-05-23-2012.pdf>.

⁸ PEIR, Appendix A

⁹ "Water quality problem" is defined in Attachment E.

of the waste, the extent of treatment, soil characteristics, distance to surface water, depth to groundwater, crop type, management practices and other site-specific factors. These individual discharges may also have a cumulative effect on waters of the state. Waste discharges from some irrigated lands have impaired or degraded and will likely continue to impair or degrade the quality of the waters of the state within the Central Valley Region if not subject to regulation pursuant to the Porter-Cologne Water Quality Control Act (codified in Water Code Division 7).

- 21 *Water Code section 13267(b)(1) states: “(1) In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. (2) When requested by the person furnishing a report, the portions of a report that might disclose trade secrets or secret processes may not be made available for inspection by the public but shall be made available to governmental agencies for use in making studies. However, these portions of a report shall be available for use by the state or any state agency in judicial review or enforcement proceedings involving the person furnishing the report.”*
- 22 Technical reports are necessary to evaluate Member compliance with the terms and conditions of this Order and to assure protection of waters of the state. Consistent with Water Code section 13267, this Order requires the implementation of a monitoring and reporting program (MRP) that is intended to determine the effects of Member waste discharges on water quality, to verify the adequacy and effectiveness of the Order’s conditions, and to evaluate Member compliance with the terms and conditions of the Order. The third party is tasked with describing high and low vulnerability areas based on definitions provided in Attachment E to this Order and guidance provided in the MRP for development of the Groundwater Assessment Report. The Executive Officer will review third party proposed high and low vulnerability areas and make the final determination of these areas. High and low vulnerability areas will be reviewed and updated throughout the implementation of this Order. A Member who is covered under this Order must comply with MRP Order R5-2012-0116-R4 which is part of this Order, and future revisions thereto by the Executive Officer or board.
- 23 The surface water quality monitoring and trend groundwater quality monitoring under this Order are regional in nature instead of individual field discharge monitoring. The benefits of regional monitoring include the ability to determine whether water bodies accepting discharges from numerous irrigated lands are meeting water quality objectives and to determine whether practices, at the watershed level, are protective of water quality. However, there are limitations to regional monitoring’s effectiveness in determining possible sources of water quality problems, the effectiveness of management practices, and individual compliance with this Order’s requirements.

Therefore, through the reporting and evaluation of applied nitrogen versus removed nitrogen, the Management Practices Evaluation Program, the Surface Water Quality Management Plans

and Groundwater Quality Management Plans, the third-party must evaluate the effectiveness of management practices in protecting water quality. In addition, Members must report the practices they are implementing to protect water quality. Through the evaluations and studies conducted by the third-party, the reporting of applied and removed nitrogen as well as the management practices used by the Members, and the board's compliance and enforcement activities, the board will be able to determine whether a Member is complying with the Order.

Where required monitoring and evaluation does not allow the Central Valley Water Board to determine potential sources of water quality problems or identify whether management practices are effective, this Order requires the third-party to provide technical reports at the direction of the Executive Officer. Such technical reports are needed when monitoring or other available information is not sufficient to determine the effects of irrigated agricultural waste discharges to state waters. It may also be necessary for the board to conduct investigations by obtaining information directly from Members to assess individual compliance.

- 24 The Central Valley Water Board's *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains programs of implementation needed to achieve water quality objectives, and references the plans and policies adopted by the State Water Board. The water quality objectives are developed to protect the beneficial uses of waters of the state. Compliance with water quality objectives will protect the beneficial uses listed in Finding 26.
- 25 This Order implements the Basin Plan by requiring the implementation of management practices to achieve compliance with applicable water quality objectives and requiring the prevention of nuisance. The Order requires implementation of a monitoring and reporting program to determine effects of discharges on water quality and the effectiveness of management practices designed to comply with applicable water quality objectives.
- 26 Pursuant to the Basin Plan and State Water Board plans and policies, including State Water Board Resolution 88-63, and consistent with the federal Clean Water Act, the existing and potential beneficial uses of waters in the Eastern San Joaquin River Watershed may include:
 - a. Municipal and Domestic Supply
 - b. Agricultural Supply
 - c. Industrial Service Supply
 - d. Hydropower Generation
 - e. Water Contact Recreation
 - f. Non-Contact Water Recreation
 - g. Warm Freshwater Habitat
 - h. Cold Freshwater Habitat
 - i. Migration of Aquatic Organisms
 - j. Spawning, Reproduction and Development
 - k. Wildlife Habitat
 - l. Freshwater Replenishment
 - m. Industrial Process Supply
- 27 In May 2004, the State Water Board adopted the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Policy). The purpose of the NPS Policy is to improve the state's ability to effectively manage NPS pollution and conform to the requirements of the Federal Clean Water Act and the Federal Coastal Zone Act Reauthorization Amendments of 1990. The NPS Policy requires, among other key elements,

an NPS control implementation program's ultimate purpose to be explicitly stated. It also requires implementation programs to, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements.

- 28 This Order constitutes an NPS Implementation Program for the discharges regulated by the Order. The ultimate purpose of this program is expressly stated in the goals and objectives for the ILRP, described in the PEIR and Attachment A to this Order. Attachment A, Information Sheet, describes the five key elements required by the NPS Policy and provides justification that the requirements of this Order meet the requirements of the NPS Policy. This Order is consistent with the NPS Policy.
- 29 The United States Environmental Protection Agency adopted the National Toxics Rule (NTR) on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000, which was modified on 13 February 2001. The NTR and CTR contain water quality criteria which, when combined with beneficial use designations in the Basin Plans, constitute enforceable water quality standards for priority toxic pollutants in California surface waters.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

- 30 For purposes of adoption of this Order, the Central Valley Water Board is the lead agency pursuant to CEQA (Public Resources Code sections 21100 et seq.). Pursuant to board direction in Resolutions R5-2006-0053 and R5-2006-0054, a Program Environmental Impact Report (PEIR) was prepared. In accordance with CEQA, the Central Valley Water Board, acting as the lead agency adopted Resolution R5-2011-0017 on 7 April 2011, certifying the PEIR for the Irrigated Lands Regulatory Program.
- 31 This Order relies on the environmental impact analysis contained in the PEIR to satisfy the requirements of CEQA. Although the Order is not identical to any of the PEIR alternatives, the Order is comprised entirely of elements of the PEIR's wide range of alternatives. Therefore, the PEIR identified, disclosed, and analyzed the potential environmental impacts of the Order. The potential compliance activities undertaken by the regulated Members in response to this Order fall within the range of compliance activities identified and analyzed in the PEIR. Therefore, all potentially adverse environmental impacts of this Order have been identified, disclosed, and analyzed in the PEIR. If it is determined that a grower filing for coverage under this Order could create impacts not identified in the PEIR, individual WDRs would be prepared for that grower and additional CEQA analysis performed, which would likely tier off the PEIR as necessary. (See Title 14, CCR § 15152).
- 32 The requirements of this Order are based on elements of Alternatives 2 through 6 of the PEIR. The PEIR concludes that implementation of some of these elements has the potential to cause significant adverse environmental impacts. Such impacts are associated, directly and indirectly, with specific compliance activities growers may conduct in response to the Order's regulatory requirements. Such activities are expected to include implementation of water quality management practices and monitoring well installation and operation. Attachment A of this Order describes example water quality management practices that may be implemented as a result of this Order and that monitoring wells may be installed as a result of this Order. The types and degrees of implementation will be similar to those described in the PEIR for Alternatives 2 through 6. Also, because the cost of this Order is expected to fall within the range of costs described for Alternatives 2 through 6, significant impacts to agriculture resources under this Order will be similar to those described in the PEIR. Because of these

similarities, this Order relies on the PEIR for its CEQA analysis. A listing of potential environmental impacts, the written findings regarding those impacts consistent with § 15091 of the CEQA Guidelines, and the explanation for each finding are contained in a separate Findings of Fact and Statement of Overriding Considerations document (Attachment D), which is incorporated by reference into this Order.

- 33 Where potentially significant environmental impacts identified in Attachment D may occur as a result of Members' compliance activities, this Order requires that Members either avoid the impacts where feasible or implement identified mitigation measures, if any, to reduce the potential impacts to a less than significant level. Where avoidance or implementation of identified mitigation is not feasible, use of this Order is prohibited and individual WDRs would be required. The Monitoring and Reporting Program (MRP) Order, Attachment B, includes a Mitigation Monitoring and Reporting Program to track the implementation of mitigation measures.
- 34 The PEIR finds that none of the program alternatives will cause significant adverse impacts to water quality. Consistent with alternatives in the PEIR, this Order contains measures needed to achieve and maintain water quality objectives and beneficial uses, reduce current pollutant loading rates, and minimize further degradation of water quality. As such, this Order will not cause significant adverse impacts to water quality.

STATE WATER RESOURCES CONTROL BOARD RESOLUTION 68-16

- 35 State Water Resources Control Board (State Water Board) Resolution 68-16 *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution 68-16 or "antidegradation policy") requires that a Regional Water Quality Control Board maintain high quality waters of the state unless the board determines that any authorized degradation is consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in a Regional Water Quality Control Board's policies (e.g., quality that exceeds applicable water quality objectives). The board must also assure that any authorized degradation of existing high quality waters is subject to waste discharge requirements which will result in the best practicable treatment or control (BPTC) of the discharge necessary to assure that pollution, or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the state will be maintained.
- 36 The Central Valley Water Board has information in its records that has been collected by the Central Valley Water Board, growers, educational institutions, and others that demonstrates that many water bodies within the Central Valley Region are impaired for various constituents, including pesticides, nitrates, and salts. Many water bodies have been listed as impaired pursuant to Clean Water Act section 303(d). This Order does not authorize further degradation of such waters.

Appendix A to the PEIR for the Irrigated Lands Program describes that "*there may be cases where irrigated agricultural waste discharges threaten to degrade high quality waters.*" For discharges to water bodies that are high quality waters, this Order is consistent with Resolution 68-16. Attachment A to this Order summarizes applicable antidegradation requirements and provides detailed rationale demonstrating how this Order is consistent with Resolution 68-16. As indicated in the summary, this Order authorizes limited degradation of high quality waters, not to exceed water quality objectives, threaten beneficial uses, or cause a condition of pollution or nuisance. The Order will also result in the implementation of BPTC by

those discharging to high quality waters and assure that any change in water quality will be consistent with maximum benefit to the people of the state.

CALIFORNIA WATER CODE SECTIONS 13141 AND 13241

- 37 California Water Code section 13141 states that “*prior to implementation of any agricultural water quality control program, an estimate of the total cost of such a program, together with an identification of potential sources of financing, shall be indicated in any regional water quality control plan.*” Section 13141 concerns approvals or revisions to a water quality control plan and does not necessarily apply in a context where an agricultural water quality control program is being developed through waivers and waste discharge requirements rather than basin planning. However, the Basin Plan includes an estimate of potential costs and sources of financing for the long-term irrigated lands program. The estimated costs were derived by analyzing the six alternatives evaluated in the PEIR. This Order, which implements the long-term ILRP within the Eastern San Joaquin River Watershed, is based on Alternatives 2-6 of the PEIR; therefore, estimated costs of this Order fall within the Basin Plan cost range.¹⁰ The total annual cost of compliance with this Order, e.g., summation of costs for administration, monitoring, reporting, tracking, implementation of management practices, is expected to be approximately \$4.10 per acre greater than the current surface water only protection program under the Coalition Group Conditional Waiver. The total estimated cost of compliance of continuation of the previous Coalition Group Conditional Waiver within the Eastern San Joaquin River Watershed is expected to be approximately 96 million dollars per year (\$114.45 per acre annually). The total estimated cost of compliance with this Order is expected to be approximately 99 million dollars per year (\$118.55 per acre annually).

Approximately \$113.34 of the estimated \$118.55 per acre annual cost of the Order is associated with implementation of management practices. This Order does not require that Members implement specific water quality management practices.¹¹ Many of the management practices that have water quality benefits can have other economic and environmental benefits (e.g., improved irrigation can reduce water and energy consumption, as well as reduce runoff). Management practice selection will be based on decisions by individual Members in consideration of the unique conditions of their irrigated agricultural lands; water quality concerns; and other benefits expected from implementation of the practice. As such, the cost estimate is an estimate of potential, not required costs of implementing specific practices. Any costs for water quality management practices will be based on a market transaction between Members and those vendors or individuals providing services or equipment and not based on an estimate of those costs provided by the board. The cost estimates include estimated fees the third-party may charge to prepare the required reports and conduct the required monitoring, as well as annual permit fees that are charged to permitted dischargers for permit coverage. In accordance with the State Water Board’s Fee Regulations, the current annual permit fee charged to members covered by this Order is \$0.56/acre. The combined total estimated costs that include third-party and state fees are estimated to be \$4.50 /acre annually or less than 5% of the total estimated cost of \$118.55 per acre. These costs have been estimated using the same study used to develop the Basin Plan cost estimate, which applies

¹⁰ When compared on a per irrigated acre basis; as the Basin Plan cost range is an estimate for all irrigated lands in the Central Valley versus this Order’s applicability to a portion thereof (irrigated lands in Eastern San Joaquin River Watershed).

¹¹ Per Water Code section 13360, the Central Valley Water Board may not specify the manner in which a Member complies with water quality requirements.

to the whole ILRP. The basis for these estimates is provided in the *Draft Technical Memorandum Concerning the Economic Analysis of the Irrigated Lands Regulatory Program*.¹² Attachment A includes further discussion regarding the cost estimate for this Order.

- 38 California Water Code section 13263 requires that the Central Valley Water Board consider the following factors, found in section 13241, when considering adoption of waste discharge requirements.
- (a) Past, present, and probable future beneficial uses of water.
 - (b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
 - (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
 - (d) Economic considerations.
 - (e) The need for developing housing within the region.
 - (f) The need to develop and use recycled water.

These factors have been considered in the development of this Order. Attachment A, Information Sheet, provides further discussion on the consideration of section 13241 factors.

RELATIONSHIP TO OTHER ONGOING WATER QUALITY EFFORTS

- 39 Other water quality efforts conducted pursuant to state and federal law directly or indirectly serve to reduce waste discharges from irrigated lands to waters of the state. Those efforts will continue, and will be supported by implementation of this Order.
- 40 The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has the goal of developing sustainable solutions to the increasing salt and nitrate concentrations that threaten the achievement of water quality objectives in Central Valley surface and groundwater. This Order requires actions that will reduce nitrate discharges and should result in practices that reduce salt loading. The board intends to coordinate all such actions with the CV-SALTS initiative. CV-SALTS may identify additional actions that need to be taken by irrigated agriculture and others to address these constituents. This Order can be amended in the future to implement any policies or requirements established by the Central Valley Water Board resulting from the CV-SALTS process. This Order includes provisions to promote coordination with CV-SALTS and to support the development of information needed for the CV-SALTS process.
- 41 Total Maximum Daily Loads (TMDLs) are established for surface waters that have been placed on the State Water Board's 303(d) list of Water Quality Limited Segments for failure to meet applicable water quality standards. A TMDL, which may be adopted by the Central Valley Water Board as Basin Plan amendments, is the sum of allowable loads of a single pollutant from all contributing point sources and nonpoint sources. The Central Valley Water Board is currently developing a pesticide TMDL and organochlorine pesticide TMDL, among others in development. This Order will implement these and other future TMDLs to the extent there are established requirements that pertain to irrigated agriculture, as well as the following

¹² ICF International. 2010. *Draft Technical Memorandum Concerning the Economic Analysis of the Irrigated Lands Regulatory Program*. Draft. July. (ICF 05508.05.) Sacramento, CA. Prepared for: Central Valley Regional Water Quality Control Board, Sacramento, CA

approved TMDLs: San Joaquin River Deep Water Ship Channel dissolved oxygen; San Joaquin River salt, boron, selenium, diazinon, and chlorpyrifos.

- 42 The General Order for Existing Milk Cow Dairies (R5-2007-0035) and NPDES Dairy General Permit CAG015001 (Dairy General Orders) regulate discharges of waste to surface waters and groundwater from existing milk cow dairies in the Central Valley. Discharges from irrigated agricultural parcels are regulated by the Dairy General Orders if the owner or operator of the parcel applies dairy waste from its dairy operation. Irrigated agricultural parcels that receive dairy waste from external sources must obtain regulatory coverage for their discharge under this Order or waste discharge requirements that apply to individual growers. The Central Valley Water Board encourages the dairy industry and the third-party to coordinate the surface water and groundwater quality monitoring required of the two orders and coordinate their response to identified water quality problems.
- 43 The Central Valley Water Board approved the East San Joaquin Water Quality Coalition Management Plan on 25 November 2008. This plan includes implementation of the approved TMDLs listed in Finding 41. This plan (along with updates and modifications approved by the Executive Officer) will continue to be implemented under this Order to address the surface water quality problems identified therein, unless and until such time the Executive Officer requires modification of the plan or deems it to be complete, as described in this Order.

COORDINATION AND COOPERATION WITH OTHER AGENCIES

- 44 *Integrated Regional Water Management Plans*: Pursuant to part 2.75 of Division 6 of the Water Code (commencing with section 10750), local agencies are authorized to adopt and implement groundwater management plans (hereinafter “local groundwater management plans”), including integrated regional water management plans. The legislation provides recommended components to the plans such as control of saline water intrusion, regulation of the migration of contaminated water, monitoring of groundwater levels and storage, and the development of relationships with regulatory agencies. The information collected through implementation of groundwater management plans can support or supplement efforts to evaluate potential impacts of irrigated agricultural discharges on groundwater. This Order requires the third-party to develop regional groundwater monitoring workplans and, where necessary, groundwater quality management plans (GQMPs). The third-party is encouraged to coordinate with local groundwater management plans and integrated regional water management plans, where applicable, when developing regional groundwater monitoring workplans and GQMPs.
- 45 *California Department of Pesticide Regulation (DPR)*: DPR has developed a Groundwater Protection Program under the authority of the Pesticide Contamination Prevention Act (PCPA) (commencing with Food and Agriculture Code section 13142). The program is intended to prevent contamination of groundwater from the legal application of pesticides. In addition to activities mandated by the PCPA, DPR’s program has incorporated approaches to identify areas vulnerable to pesticide movement, develop mitigation measures to prevent pesticide contamination, and monitor domestic drinking water wells located in groundwater protection areas. The Groundwater Protection Program can provide valuable information on potential impacts to groundwater from agricultural pesticides. If necessary, DPR and the county agricultural commissioners can use their regulatory authorities to address any identified impacts to groundwater or surface water attributable to pesticide discharges from agricultural fields.

- 46 *California Department of Food and Agriculture (CDFA)*: The CDFA Fertilizer Research and Education Program (FREP) coordinates research to advance the environmentally safe and agronomically sound use and handling of fertilizer materials. The University of California Agriculture and Natural Resources (UC ANR) and CDFA FREP developed and offers nitrogen management certification training for Certified Crop Advisors (CCAs). Between 2012 and 2015, eight training sessions were held, certifying approximately 800 CCAs statewide. A special training program has also been developed for training CCAs to become grower-trainers and provide grower training. Among other certification options available for irrigation and nitrogen management plans, the CDFA training programs will be recognized as providing the training necessary for a Member or CCA to certify irrigation and nitrogen management plans. In addition, this Order requires the preparation of an irrigation and nitrogen management plan and submittal of a summary report. CDFA has had an active role in working with the agricultural community on the concepts related to the template and that role is expected to continue. This Order leverages CDFA's work and expertise with respect to nitrogen management training and technical support to the professionals and third-parties that will be developing irrigation and nitrogen management plans for individual Members.
- 47 *Nitrogen Management and Control* – In response to nitrate groundwater concerns, the Legislature enacted Chapter 1 of the Second Extraordinary Session of 2008 (SBX2 1, Perata), requiring the State Water Board to develop pilot projects focusing on nitrate in groundwater in the Tulare Lake Basin and the Salinas Valley, and to submit a Report to the Legislature.¹³ In its report, the State Water Board made fifteen recommendations to address the issues associated with nitrate contaminated groundwater.

In fulfillment of Recommendation #11 of the Report to the Legislature, CDFA, in coordination with the Water Boards, convened the Nitrogen Tracking and Reporting Task Force (Nitrogen Tracking Task Force) to identify an appropriate nitrogen tracking and reporting system and to provide meaningful and high quality data to help CDFA and the water boards address groundwater quality nitrate issues in California. The Nitrogen Tracking Task Force included stakeholders and experts from agricultural organizations, academia, regulatory agencies, and the environmental advocacy community. The Task Force's Final Report¹⁴ was released December 5, 2013, and made recommendations for a nitrogen tracking and reporting system. The recommended system addressed eight key topics including: (1) system structure; (2) data elements; (3) roles, responsibilities, and data accessibility; (4) benefits of participation; (5) verifiability; (6) societal benefits of the recommended system; (7) limitations; and (8) system phasing.

In fulfillment of Recommendation #14 of the Report to the Legislature, the State Water Board, in coordination with CDFA, convened the Agricultural Expert Panel to consider all existing studies, program, and efforts for agricultural nitrate control, including the recommendations of the Nitrogen Tracking Task Force. The Agricultural Expert Panel consisted of eight members with various areas of specialization including: an irrigation specialist/agricultural engineer, a soil scientist, a hydrogeologist, an agronomist, a certified crop advisor, a University of California Cooperative Extension farm advisor, a Central Coast grower, and a Central Valley grower. The Agricultural Expert Panel held multiple public meetings over a six month period in

¹³ State Water Board Resources Control Board. 2013. Report to the Legislature, Recommendations Addressing Nitrate in Groundwater. <http://www.swrcb.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf>

¹⁴ California Department of Food and Agriculture. 2013. Nitrogen Tracking and Reporting Task Force Final Report. <<https://www.cdffa.ca.gov/environmentalstewardship/PDFs/NTRSTFFinalReport122013.pdf>>

Tulare, San Luis Obispo, and Sacramento to consider the questions posed to them by the State Water Board. In its assessment, the Agricultural Expert panel considered groundwater monitoring, tracking and reporting of nitrogen fertilizer application, estimates of nitrogen use efficiency or similar metric, and farm-specific nutrient management plans as source control measures and regulatory tools. The Agricultural Expert Panel Final Report¹⁵ was presented to the State Water Board on September 23, 2014. In its Final Report, the Agricultural Expert panel recommended (in no particular order):

- Establishment of coalitions as an intermediate body between Members and regional boards;
- Adoption of a Nitrogen Applied to Nitrogen Removed Ratio (A/R Ratio) as the primary metric for evaluating progress on nitrogen source control;
- Development of strong, comprehensive, and sustained educational and outreach program;
- Creation and implementation of Irrigation and Nitrogen Management Plans;
- Reporting of key values of crop type, acreage, total nitrogen applied, and total nitrogen removed by Members to the third-party;
- Trend groundwater monitoring for nitrate concentrations to track general aquifer conditions over multiple years;
- Targeted research to directly help the agricultural community to maintain and/or improve yields while simultaneously decreasing A/R ratio on individual fields;
- Analysis of reported values on a multiple-year basis to inform agricultural community of progress and sharpen improvement efforts.

- 48 The Central Valley Water Board will continue to work cooperatively with the other state agencies to identify and leverage their efforts.

ENFORCEMENT FOR NONCOMPLIANCE WITH THIS ORDER

- 49 California Water Code section 13350 provides that any person who violates Waste Discharge Requirements may be: 1) subject to administrative civil liability imposed by the Central Valley Water Board or State Water Board in an amount of up to \$5,000 per day of violation, or \$10 per gallon if the discharge involves a discharge of pollutants; or 2) be subject to civil liability imposed by a court in an amount of up to \$15,000 per day of violation, or \$20 per gallon. The actual calculation and determination of administrative civil penalties must be set forth in a manner that is consistent with the State Water Board's Water Quality Enforcement Policy.

- 50 The State Water Board's Water Quality Enforcement Policy (Enforcement Policy) endorses progressive enforcement action for violations of waste discharge requirements when appropriate, but recommends formal enforcement as a first response to more significant violations. Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement resources to: 1) assist cooperative Members in achieving compliance; 2) compel compliance for repeat violations and recalcitrant violators; and 3) provide a disincentive for noncompliance. Progressive enforcement actions may begin with informal enforcement actions such as a verbal, written, or electronic communication between the Central Valley Water Board and a Member. The purpose of an informal enforcement action is to quickly bring the violation to the Member's attention and to give the

¹⁵ State Water Resources Control Board. 2014. Conclusions of the Agricultural Expert Panel.
http://www.swrcb.ca.gov/water_issues/programs/agriculture/docs/ILRP_expert_panel_final_report.pdf
December 2012 – Revised October 2013, March 2014, April 2015, October 2015, and [Month Year]

Member an opportunity to return to compliance as soon as possible. The highest level of informal enforcement is a Notice of Violation.

The Enforcement Policy recommends formal enforcement actions for the highest priority violations, chronic violations, and/or threatened violations. Violations of this Order that will be considered a priority include, but are not limited to:

- a. Failure to obtain required regulatory coverage.
- b. Failure to meet receiving water limitations, unless the Member is implementing a Central Valley Water Board approved SQMP or GQMP in accordance with the time schedule provisions of this Order (section XII).¹⁶
- c. The discharge of waste to lands not owned, leased, or controlled by the Member without written permission from the landowner.
- d. Failure to prevent future exceedances of water quality objectives once made aware of an exceedance.
- e. Falsifying information or intentionally withholding information required by applicable laws, regulations or an enforcement order.
- f. Failure to implement a SQMP/GQMP.
- g. Failure to pay annual fees, penalties, or liabilities.
- h. Failure to monitor or provide information to the third-party as required.
- i. Failure to submit required reports on time.
- j. Failure to implement the applicable management practices, or equivalent practices, identified as protective of groundwater in the Management Practices Evaluation Report.

51 Under this Order, the third-party is tasked with developing monitoring plans, conducting monitoring, developing water quality management plans, and informing Members of requirements. It is intended that the following progressive enforcement steps will generally be taken in the event that the third-party fails to comply with the terms and conditions of this Order or attached MRP:

- a) First notification of noncompliance to the third-party. The Central Valley Water Board intends to notify the third-party of the non-compliance and allow a period of time for the third-party to come back into compliance. This notification may be in the form of a verbal notice, letter, or written notice of violation, depending on the severity of the noncompliance.
- b) Second notification of noncompliance to the third-party. If the third-party fails to adequately respond to the first notification, the board intends to provide written notice to the third-party and potentially affected Members of the failure to address the first notice.
- c) Failure of the third-party to adequately respond to the second notification. Failure to adequately respond to the second notification may result in partial (e.g., affected areas or Members) or full disapproval of the third-party to act as a lead entity, depending on the severity of noncompliance. Growers that were Members affected by a partial or full third-party disapproval would be required to obtain coverage for their waste discharge under other applicable general waste discharge requirements or submit a Report of Waste Discharge to the Central Valley Water Board.

¹⁶ A Member participating in a Management Practices Evaluation Program study (i.e., the study is taking place on the Member's farm) where data indicate the discharge from the study area is not meeting receiving water limitations will not be a priority for enforcement, if the Member is implementing a Central Valley Water Board approved SQMP or GQMP in accordance with the time schedule provisions of this Order (section XII).

GENERAL FINDINGS

- 52 This Order does not authorize violation of any federal, state, or local law or regulation.
- 53 This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any action authorized under this Order, the Member shall obtain authorization for an incidental take prior to construction or operation of the project. The Member shall be responsible for meeting all requirements of the applicable Endangered Species Act.
- 54 This Order does not supersede the Central Valley Water Board's Basin Plans and policies, including prohibitions (e.g., pesticides) and implementation plans (e.g., Total Maximum Daily Loads), or the State Water Board's plans and policies.
- 55 As stated in California Water Code section 13263(g), the discharge of waste into waters of the state is a privilege, not a right, and regulatory coverage under this Order does not create a vested right to continue the discharge of waste. Failure to prevent conditions that create or threaten to create pollution or nuisance will be sufficient reason to modify, revoke, or enforce this Order, as well as prohibit further discharge.
- 56 This Order requires Members to provide the third-party with contact information of the person(s) authorized to provide access to the enrolled property for inspections. This requirement provides a procedure to enable board staff to contact grower representatives so that it may more efficiently monitor compliance with the provisions of this Order.
- 57 Any instance of noncompliance with this Order constitutes a violation of the California Water Code and its regulations. Such noncompliance is grounds for enforcement action, and/or termination of coverage for waste discharges under this Order, subjecting the discharger to enforcement under the Water Code for further discharges of waste to surface or groundwater.
- 58 All discharges from the irrigated agricultural operation are expected to comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges to storm drain systems or to other courses under their jurisdiction.
- 59 The fact that it would have been necessary to halt or reduce the discharge in order to maintain compliance with this Order shall not be a defense for violations of the Order by the Member.
- 60 This Order is not a National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Clean Water Act. Coverage under this Order does not exempt a facility from the Clean Water Act. Any facility required to obtain such a permit must notify the Central Valley Water Board.
- 61 Water Code section 13260(d)(1)(A) requires persons subject to waste discharge requirements to pay an annual fee established by the State Water Board.
- 62 The Findings of this Order, supplemental information and details in the attached Information Sheet (Attachment A), and the administrative record of the Central Valley Water Board relevant to the Irrigated Lands Regulatory Program, were considered in establishing these waste discharge requirements.

- 63 The Central Valley Water Board has notified interested agencies and persons of its intent to adopt this Order for discharges of waste from irrigated lands within the Eastern San Joaquin River Watershed, and has provided them with an opportunity for a public hearing and an opportunity to submit comments.
- 64 The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to this Order.
- 65 Any person affected by this action of the Central Valley Water Board may petition the State Water Board to review this action. The State Water Board must receive the petition within 30 days of the date on which the Central Valley Water Board adopted this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

IT IS HEREBY ORDERED that, pursuant to California Water Code sections 13260, 13263, and 13267 and in order to meet the provisions contained in Division 7 of the California Water Code and regulations and policies adopted there under; all Members of the third-party group, their agents, successors, and assigns shall comply with the following:

I. Coverage

1. Order 2006-0053, Coalition Group Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Coalition Group Conditional Waiver), is hereby rescinded as it applied to Members of the East San Joaquin Water Quality Coalition in the Eastern San Joaquin River Watershed.

II. Prohibitions

1. The discharge of waste to waters of the state, from irrigated agricultural operations other than those defined in the Findings of this Order, is prohibited.
2. The discharge of hazardous waste, as defined in California Water Code section 13173 and Title 23 CCR section 2521(a), respectively, is prohibited.
3. The discharge of wastes (e.g., fertilizers, fumigants, pesticides) into groundwater via backflow through a water supply well is prohibited.
4. The discharge of any wastes (e.g., fertilizers, fumigants, pesticides) down a groundwater well casing is prohibited.

III. Receiving Water Limitations

A. Surface Water Limitations¹⁷

1. Wastes discharged from Member operations shall not cause or contribute to an exceedance of applicable water quality objectives in surface water, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance.

¹⁷ These limitations are effective immediately except where Members are implementing an approved Surface Water Quality Management Plan (SQMP) for a specified waste parameter in accordance with an approved time schedule authorized pursuant to sections VIII.H and XII of this Order.

B. Groundwater Limitations¹⁸

1. Wastes discharged from Member operations shall 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.

IV. Provisions

A. General Specifications

1. The third-party will assist its Members in complying with the relevant terms and provisions of this Order, including required monitoring and reporting as described in MRP Order R5-2012-0116-R4. However, individual Members of the third-party group continue to bear ultimate responsibility for complying with this Order.
2. Irrigated lands owners or operators with waste discharges to state waters (or “Dischargers”) that are not Members of the third-party group, or whose property is not enrolled by a Member of the third-party group, shall not be subject to coverage provided by the terms of this Order. Such Dischargers shall be required to obtain coverage for their waste discharge under individual waste discharge requirements or any applicable general waste discharge requirements that apply to individuals that are not represented by a third-party.
3. Members who are subject to this Order shall implement water quality management practices, as necessary, to protect water quality and to achieve compliance with applicable water quality objectives. Where applicable, the implementation of practices must be in accordance with the time schedule contained in an approved Groundwater Quality Management Plan or Surface Water Quality Management Plan.
4. Installation of groundwater monitoring wells or implementation of management practices to meet the conditions of this Order at a location or in a manner that could cause an adverse environmental impact as identified in the *Irrigated Lands Regulatory Program, Final Program Environmental Impact Report (PEIR)*¹⁹ shall be mitigated in accordance with the mitigation measures provided in Attachment C of this Order.
5. The provisions of this Order are severable. If any provision of the Order is held invalid, the remainder of the Order shall not be affected.

B. Requirements for Members of the Third-Party Group

1. Members shall comply with all applicable provisions of the California Water Code, the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, and State Water Board plans and policies.
2. All Members shall comply with the attached Monitoring and Reporting Program (MRP) R5-2012-0116-R4, and future revisions thereto.
3. Members who are covered under this Order shall comply with the terms and conditions contained in this Order.

¹⁸ These limitations are effective immediately except where Members are implementing an approved Groundwater Quality Management Plan (GQMP) for a specified waste parameter in accordance with an approved time schedule authorized pursuant to sections VIII.H and XII of this Order.

¹⁹ On 7 April 2011, the Central Valley Water Board adopted Resolution R5-2011-0017, certifying the PEIR for the long-term irrigated lands regulatory program.

4. Each Member²⁰ shall participate in third-party outreach events, at least annually. The Member shall review outreach materials to become informed of any water quality problems to address and the management practices that are available to address those issues. The Member shall provide annual confirmation to the third-party that the Member has participated in an outreach activity during the previous year and reviewed the applicable outreach materials. Members who have no parcels in areas designated as high vulnerability are not required to commence participation in third-party outreach events until 2020.
5. All Members shall provide the third-party with information requested for compliance with this Order.
6. All Members shall implement water quality management practices in accordance with any water quality management plans approved by the Central Valley Water Board Executive Officer, and/or as necessary to protect water quality and to achieve compliance with surface and groundwater receiving water limitations of this Order (sections III.A and B). Water quality management practices can be instituted on an individual basis, or implemented to serve multiple growers discharging to a single location.
7. All Members shall implement effective sediment discharge and erosion prevention practices to minimize or eliminate the discharge of sediment above background levels. Members with the potential to cause erosion and discharge sediment that may degrade surface waters, as identified by the Member in their Farm Evaluation, by the third-party in the Sediment Discharge and Erosion Assessment Report, or by the Executive Officer shall prepare and implement a Sediment and Erosion Control Plan as specified in section VII.C below.
8. All Members shall implement practices that minimize excess nutrient application. Members shall prepare and implement a farm-specific irrigation and nitrogen management plan and submit a farm-specific irrigation and nitrogen management plan summary report as required by section VII.D of this Order.²¹
9. In addition to the reports identified in section VII of this Order, the Executive Officer may require the Member to submit additional technical reports pursuant to California Water Code section 13267.
10. The requirements prescribed in this Order do not authorize the commission of any act causing injury to the property of another, or protect the Member from liabilities under other federal, state, county, or local laws. However, enrollment under this Order does protect the Member from liability alleged for failing to comply with Water Code 13260.

²⁰ For the purposes of this provision only, the term "Member" or "Grower" includes "Designees", provided that a Designee has responsibility for decisions related to management practices associated with farming operation.

²¹ Irrigation and Nitrogen Management Plans are prepared in advance of the crop season, and based on circumstances that are forecasted. However, due to changes in weather, water availability, and other unanticipated circumstances, growers may find it necessary to adjust the Irrigation and Nitrogen Management Plan as originally prepared. Such adjustments are not considered to be violations of the Order, provided the revision maintains compliance with provision of this Order. Should such adjustments be necessary, the member must document the reasons for adjustments in the Irrigation and Nitrogen Management Plan retained at the grower's place of business and report the reasons to the third-party with the Irrigation and Nitrogen Management Plan retained at the grower's place of business and report the reasons to the third-party with the Irrigation and Nitrogen Management Plan Summary Report.

11. This Order does not convey any property rights or exclusive privileges.
12. This Order shall not create a vested right, and all such discharges of waste shall be considered a privilege, as provided for in Water Code section 13263.
13. The Member understands that the Central Valley Water Board or its authorized representatives, may, at reasonable hours, inspect the facilities and irrigated lands of persons subject to this Order to ascertain whether the purposes of the Porter-Cologne Act are being met and whether the Member is complying with the conditions of this Order. To the extent required by Water Code section 13267(c) or other applicable law, the inspection shall be made with the consent of the Member, owner or authorized representative, or if consent is withheld, with a duly issued warrant pursuant to the procedure set forth in Title 13 Code of Civil Procedure Part 3 (commencing with section 1822.50). In the event of an emergency affecting the public health and safety, an inspection may be performed without the consent or the issuance of a warrant.
14. The Member shall provide the third-party with the phone number(s) of the individual(s) with authority to provide consent to access its facilities as described in provision IV.B.13 above.
15. The Member shall properly operate and maintain in good working order any facility, unit, system, or monitoring device installed to achieve compliance with the Order.
16. Settling ponds, basins, and tailwater recovery systems shall be constructed, maintained, and operated to prevent groundwater degradation, erosion, slope failure; and minimize the discharge of sediment. The construction and operation must be consistent with the applicable Natural Resources Conservation Service (NRCS) conservation practice standard, an NRCS or University of California Cooperative Extension recommendation, or an equivalent alternative standard.
17. Where applicable, the Member shall follow state, county or local agency standards with respect to water wells and groundwater quality when constructing new wells, modifying existing wells, or destroying wells. Absent such standards, at a minimum, the Member shall follow the standards and guidelines described in the California Department of Water Resources' *Water Well Standards (Bulletins 74-81 & 74-90 combined)*.
18. The Member shall maintain a copy of this Order, either in hard copy or electronic format, at the primary place of business, or the Member's headquarters for its farming operation. The Member shall also maintain excerpts of the Order's Member requirements that have been provided by the Executive Officer, so as to be available at all times to operations personnel. The Member and his/her designee shall be familiar with the content of this Order.
19. The Member, or the third-party on its behalf as applicable, shall submit all required documents in accordance with section IX of this Order.
20. Members shall, at a minimum, implement water quality management practices that meet the following farm management performance standards:
 - a. Minimize waste discharge offsite in surface water,
 - b. Minimize percolation of waste to groundwater,
 - c. Protect wellheads from surface water intrusion.

21. Members shall implement the applicable management practices, or equivalent practices, identified as protective of groundwater in the Management Practices Evaluation Report.

C. Requirements for the Third-Party Group

In order to remain eligible to serve as a third-party representative to Members, the third-party shall perform the following:

1. Provide the Central Valley Water Board documentation of its organizational or management structure. The documentation shall identify persons responsible for ensuring that program requirements are fulfilled. The documentation shall be made readily available to Members.
2. Prepare annual summaries of expenditures of fees and revenue used to comply with this Order. The summaries shall be provided to or made readily available to Members.
3. If the third-party group receives a notice of violation (NOV) from the Central Valley Water Board, the third-party must provide to Members in the area addressed by the NOV appropriate information regarding the reason(s) for the violation. The notification must be provided to all Members within the area affected by the NOV within thirty (30) days of receiving the NOV from the board. The third-party group must provide confirmation to the board of each notification. A summary of all notices of violation received by the third-party group must be provided to all Members annually.
4. Develop and implement plans to track and evaluate the effectiveness of water quality management practices, pursuant to approved Surface Water Quality Management Plans and Groundwater Quality Management Plans.
5. Provide timely and complete submittal of any plans or reports required by this Order.
6. Conduct required water quality monitoring and assessments in conformance with quality assurance/quality control requirements. Provide timely and complete submittal of any reports required by this Order.
7. Within 30 days of receiving an NOA from the Central Valley Water Board (as described in section VIII.A), inform Members of this Order's requirements by providing a notice of confirmation form to be completed by each Member.
8. Conduct education and outreach activities to inform Members of program requirements and water quality problems, including exceedances of water quality objectives or degradation of water quality, identified by the third-party or Central Valley Water Board. Outreach events and materials shall include information on nitrogen application practices and the potential impact of nitrates on groundwater and, as appropriate depending on the anticipated grower audience, shall be provided in multiple languages. The third-party shall:
 - a. Maintain participation lists for outreach activities, provide Members with information on water quality management practices that will address water quality problems and minimize the discharge of wastes from irrigated lands, and provide informational materials on potential environmental impacts of water quality management practices to the extent known by the third-party group.
 - b. Provide an annual summary of education and outreach activities to the Central Valley Water Board. The annual summary shall include copies of the educational and management practice information provided to the growers. The annual summary must report the total number of growers who attended the outreach events and describe how growers could obtain copies of the materials presented at these events.

- c. Provide additional INMP self-certification training for Members notified as being outliers for reported AR data and who opt not to use a specialist for INMP certification. This INMP self-certification training shall be focused on assisting Members in reducing their overall $A/R_{3 \text{ year}}$ ratio and shall require in-person attendance.
9. Work cooperatively with the Central Valley Water Board to ensure all Members are providing required information and taking necessary steps to address exceedances or degradation identified by the third-party or board. As part of the Membership List submittal, identify the growers who have: (1) failed to implement improved water quality management practices within the timeframe specified by an applicable SQMP/GQMP; (2) failed to respond to an information request associated with any applicable SQMP/GQMP or other provisions of this Order; (3) failed to participate in third-party studies for which the third-party is the lead; (4) failed to provide confirmation of participation in an outreach activity (per section IV.B.4 of this Order); or (5) failed to submit required fees to the third-party.
10. Ensure that any activities conducted on behalf of the third-party by other groups meet the requirements of this Order. The third-party is responsible for any activities conducted on its behalf.
11. Collect any fees from Members required by the State Water Board pursuant to the fee schedule contained in Title 23 CCR. Such fees shall then be submitted to the State Water Board.

V. Effective Dates

1. This Order is effective upon adoption by the Central Valley Water Board on **7 December 2012** and remains in effect as revised by the Central Valley Water Board on **3 October 2013, 27 March 2014 and 17 April 2015**; and as revised by the State Water Board Order on [**day month year**]; unless rescinded or further revised by the Central Valley Water Board.
2. Regulatory coverage under this Order for discharges of waste from Members already enrolled under Order R5-2006-0053 is effective upon adoption of this Order by the Central Valley Water Board. Regulatory coverage under this Order is automatically terminated, if a Notice of Confirmation (NOC) is not received by the third-party from the currently enrolled Member within 120 days of Executive Officer issuance of an NOA to the third-party.
3. Regulatory coverage for Dischargers not already enrolled under Order R5-2006-0053 as of the date of adoption of this Order can be obtained directly through obtaining membership in the third-party group within 120 days of Executive Officer issuance of a Notice of Applicability (NOA) to the third-party. Regulatory coverage is effective when the third-party notifies the Central Valley Water Board that the Discharger's application for membership has been accepted.
4. After the initial 120-day period following issuance of an NOA to the third-party group, regulatory coverage is effective upon notification by the Central Valley Water Board that this Order applies to the grower through the issuance of an NOA. The Central Valley Water Board shall only issue an NOA after it has received a Notice of Intent (NOI) as required by section VII.A, and after the Central Valley Water Board has received notification from the third-party that the Discharger is a Member. The Discharger must pay any applicable State Water Board administrative fees associated with the filing of NOIs.

VI. Permit Reopening, Revision, Transfer, Revocation, Termination, and Reissuance

1. This Order may be reopened to address any changes in state statutes, regulations, plans, or policies that would affect the water quality requirements for the discharges, including, but not limited to, the Central Valley Water Board *Water Quality Control Plan* (Basin Plan) for the *Sacramento River and San Joaquin River Basins*.

2. The Central Valley Water Board is developing amendments to the Basin Plan to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the waters and soils of the Central Valley. Strategies currently under consideration may:
 - a) Alter the way the Board calculates available assimilative capacity for nitrate, which could result in new or modified requirements for nitrate management;
 - b) Require dischargers to implement actions identified under an interim salinity permitting approach; and/or
 - c) Establish alternate compliance approaches that would allow dischargers to participate in efforts to provide drinking water to local communities in consideration for longer compliance time schedules and/or the use of variances or exceptions for meeting applicable water quality objectives.

Should the Board adopt amendments to the Basin Plan to effectuate such strategies, these waste discharge requirements may be amended or modified to incorporate any newly-applicable requirements.

3. The stakeholder-led Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has been coordinating efforts to implement new salt and nitrate management strategies. The Board expects dischargers that may be affected by new salt and nitrate management policies to coordinate with the CV-SALTS initiative.

- ~~3.4.~~ The filing of a request by the third-party on behalf of its Members for modification, revocation and re-issuance, or termination of the Order, or notification of planned changes or anticipated noncompliance, does not stay any condition of the Order.

- ~~4.5.~~ The third-party, on behalf of its Members, shall provide to the Executive Officer any information which the Executive Officer may request to determine whether cause exists for modifying, revoking and re-issuing, or terminating the Order, or to determine compliance with the requirements of this Order that apply directly to the third-party. Members shall provide to the Executive Officer, any information which the Executive Officer may request to determine whether cause exists for modifying, revoking and re-issuing, or terminating the Order as applied to the individual Member, or to determine compliance with the provisions of this Order that apply directly to the Member.

- ~~5.6.~~ After notice and opportunity for a hearing, the Order may be terminated or modified for cause as applied to individual Members identified by the Central Valley Water Board. Cause for such termination or modification, includes, but is not limited to:
 - a. Violation of any term or condition contained in the Order;
 - b. Obtaining the Order by misrepresentation; or
 - c. Failure to fully disclose all relevant facts.

A Member's regulatory coverage shall be automatically revoked if the NOC is not timely submitted (see section VII.A).

~~6.7.~~ After notice and opportunity for a hearing, the approval of the third-party to act as a lead entity representing Members may be partially (e.g., affected areas or Members) or fully revoked. Cause for such termination or modification includes, but is not limited to consideration of the factors in Finding 51 of this Order, and/or:

- a. Violation of any term or condition contained in the Order that applies directly to the third-party;
- b. Third-party misrepresentation;
- c. Failure by the third-party to fully disclose all known relevant facts; or
- d. A change in any condition that results in the third-party's inability to properly function as the third-party entity representing Member interests or in facilitating Member compliance with the terms and conditions of this Order.

~~7.8.~~ The Central Valley Water Board will review this Order periodically and may revise this Order when necessary.

VII. Required Reports, Monitoring, and Notices – Member

The Central Valley Water Board or the Executive Officer may require any of the following reports and notices to be submitted electronically as long as the electronic format is reasonably available to the Member, and only to the extent that the Member has access to the equipment that allows for them to submit the information electronically. If the Member does not have such access, reports and notices must be submitted by mail. Reports and notices shall be submitted in accordance with section IX, Reporting Provisions, as well as Attachment B MRP Order R5-2012-0116-R4. Members must prepare and maintain the following reports as instructed below, and shall submit or make available such reports to the third-party or the Central Valley Water Board as identified below.

A. Notice of Confirmation / Notice of Intent / Membership Application

1. To confirm coverage under this Order, Members that, as of the effective date of this Order, are enrolled under Order R5-2006-0053 as Members of the East San Joaquin Water Quality Coalition must submit a completed notice of confirmation (NOC) to the third-party within 120 days of Executive Officer approval of the third-party (as provided by issuance of an NOA to the third-party, see section VIII.A of this Order). The third-party will provide a NOC form to Members within 30 days of receiving an NOA (see section VIII.A) from the Central Valley Water Board. As part of the NOC, Members must provide certification that they have provided written notice to any responsible non-Member parties of the Member's enrollment under this Order and of the requirements of this Order (a responsible non-Member is a landowner whose parcel has been enrolled by an operator-Member under this Order or an operator who farms a parcel that has been enrolled by a landowner-Member). If the Member is a landowner that leases their land, the Member must provide the name and contact information of the lessee.
2. Within 120 days of Executive Officer issuance of an NOA to the third-party, all other growers within this Order's boundaries must become Members of the third-party to avoid additional fees and administrative requirements (see section VII.A.3 below). To obtain membership, a grower must submit a completed third-party Membership application to the third-party group. As part of the membership application, growers must provide certification that they have provided written notice to any responsible non-Member parties of the Member's enrollment under this Order and of the requirements of this Order. Upon submittal of a complete application, the third-party

group may confirm membership, after which the Member will be considered covered under this Order. This provision does not apply to Members of the San Joaquin County and Delta Coalition; Westside San Joaquin River Watershed Coalition; or Southern San Joaquin Valley Water Quality Coalition governed by the Coalition Group Conditional Waiver whose parcel(s) are located in the Eastern San Joaquin River Watershed.

3. Beginning 121 days after Executive Officer issuance of an NOA to the third-party, any growers within this Order's boundaries that are not yet Members of the third-party or a Coalition governed by the Coalition Group Conditional Waiver must submit (1) a completed Notice of Intent (NOI) to the Central Valley Water Board to comply with the conditions of this Order, (2) any required State Water Board administrative processing fee for the NOI, and (3) a Membership application to the third-party group. Upon submittal of a complete NOI, and after receiving confirmation from the third-party group that the grower is now a Member, the Central Valley Water Board Executive Officer may then issue a Notice of Applicability (NOA), after which the Member will be considered covered under this Order. In lieu of issuing an NOA, the Executive Officer may deny the NOI and require the submittal of a report of waste discharge or issue an NOA for regulatory coverage under any applicable general waste discharge requirements for individual dischargers not represented by a third-party.
4. As an alternative to receiving regulatory coverage under this Order, a discharger may submit a report of waste discharge in accordance with Water Code section 13260 or a Notice of Intent for regulatory coverage under any applicable general waste discharge requirements for individual dischargers not represented by a third-party.

B. Farm Evaluation

After the Executive Officer approves the Farm Evaluation Template (see Section VIII.C. below), Members shall complete a Farm Evaluation and submit a copy of the completed Farm Evaluation to the third-party group according to the schedule below. The Member must use the Farm Evaluation Template approved by the Executive Officer (see section VIII.C below). A copy of the Farm Evaluation shall be maintained at the Member's farming headquarters or primary place of business, and must be produced upon request by Central Valley Water Board staff. In addition, Members shall comply with the following requirements where applicable:

1. Members in Low Vulnerability Areas

1. Members with Small Farming Operations

By 1 March 2017, Members with Small Farming Operations must prepare their Farm Evaluation and submit it to the third-party. An updated Farm Evaluation must be prepared and submitted to the third-party by 1 March 2021 and every five years thereafter.

2. All other Members²²

By 1 March 2015, all other Members must prepare their Farm Evaluation and submit it to the third-party. An updated Farm Evaluation must be prepared on 1 March 2021 and submitted to the third-party every five years thereafter.

[The Executive Officer may require less frequent submission of a Farm Evaluation for any Member or group of Members if the Executive Officer makes a determination that the change in frequency is warranted.](#)

²² Members with parcels that do not meet the Small Farming Operation definition (see Attachment E).
December 2012 – Revised October 2013, March 2014, April 2015, October 2015, and [Month Year]

2. All Members in High Vulnerability Areas (Surface/Groundwater)

By 1 May 2014, all Members within a high vulnerability area must prepare their Farm Evaluation and submit it to the third-party. An updated Farm Evaluation must be prepared and submitted to the third-party by 1 March annually thereafter through 1 March 2018. Thereafter, Members must prepare and submit their Farm Evaluation to the third-party on 1 March 2021 and every five years.

The Executive Officer may require more frequent submission of a Farm Evaluation for any Member or group of Members if the Executive Officer makes a determination that the change in frequency is warranted.

C. Sediment and Erosion Control Plan

The requirements and deadlines of this section apply as specified to Members that are required to develop a Sediment and Erosion Control Plan per section IV.B.7 of this Order. The Member must use the Sediment and Erosion Control Plan Template approved by the Executive Officer (see section VIII.C.3 below), or equivalent. The Sediment and Erosion Control Plan must be prepared in one of the following ways:

- The Sediment and Erosion Control Plan must adhere to the site-specific recommendation from the Natural Resources Conservation Service (NRCS), NRCS technical service provider, the University of California Cooperative Extension, the local Resource Conservation District; or conform to a local county ordinance applicable to erosion and sediment control on agricultural lands. The Member must retain written documentation of the recommendation provided and certify that they are implementing the recommendation; or
- The Sediment and Erosion Control Plan must be prepared and self-certified by the Member, who has completed a training program that the Executive Officer concurs provides necessary training for sediment and erosion control plan development; or
- The Sediment and Erosion Control Plan must be written, amended, and certified by a Qualified Sediment and Erosion Control Plan Developer possessing one of the following registrations or certifications, and appropriate experience with erosion issues on irrigated agricultural lands: California registered professional civil engineer, geologist, engineering geologist, landscape architect; professional hydrologist registered through the American Institute of Hydrology; certified soil scientist registered through the American Society of Agronomy; Certified Professional in Erosion and Sediment Control (CPSEC)TM/Certified Professional in Storm Water Quality (CPSWQ)TM registered through Enviro Cert International, Inc.; professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET); or
- The Sediment and Erosion Control Plan must be prepared and certified in an alternative manner approved by the Executive Officer. Such approval will be provided based on the Executive Officer's determination that the alternative method for preparing the Sediment and Erosion Control Plan meets the objectives and requirements of this Order.

The plan shall be maintained and updated as conditions change. A copy of the Sediment and Erosion Control Plan shall be maintained at the farming operations headquarters or primary place of business; and must be produced by the Member, if requested, should Central Valley Water Board staff, or an authorized representative, conduct an inspection of the Member's irrigated lands operation.

1. *Deadline for Members with Small Farming Operations*

Within one (1) year of the Executive Officer accepting the third-party's Sediment Discharge and Erosion Assessment Report, Members with Small Farming Operations must complete and implement a Sediment and Erosion Control Plan.

2. *Deadline for all Other Members*²³

Within 180 days of the Executive Officer accepting the third-party's Sediment Discharge and Erosion Assessment Report, all other Members must complete and implement a Sediment and Erosion Control Plan.

D. Irrigation and Nitrogen Management Plan, Data Supporting Nitrogen Applied/Removed Ratio, and Nitrogen Applied-Removed Difference

All Members must prepare and implement a certified Irrigation and Nitrogen Management Plan (INMP) for each field²⁴ and submit the INMP²⁵ Summary Report for the previous crop year, per the schedule detailed below. The Member must use the INMP Template approved by the Executive Officer (see section VIII.C.2. below).

The Executive Officer may approve the use of multi-year INMPs for categories of crops that have consistent irrigation and nitrogen planning from year to year.²⁶ Multi-year plans cannot exceed three years in length, and if the Member decides to vary from the plan during its implementation period, a new INMP must be prepared, certified, and implemented. Members using multi-year INMPs must submit INMP Summary Reports annually. Utilization of a multi-year INMP remains at the discretion of the certifier.

An INMP must include the information identified in Attachment B MRP Section VI.B for use by the third-party in calculating an Applied/Removed (A/R) ratio for nitrogen, and an Applied-Removed (A-R) difference for nitrogen, as defined in the equations below. The A/R ratio is the ratio of total Nitrogen Applied²⁷ (from sources including, but not limited to, organic amendments, synthetic fertilizers, manure, and irrigation water) to the total Nitrogen Removed²⁸ (including all harvested materials and nitrogen annually sequestered in permanent wood for perennial crops). The A-R difference is the difference of total Nitrogen Applied and the total Nitrogen Removed.

²³ Members with parcels that do not meet the Small Farming Operation definition (see Attachment E).

²⁴ Where this Order requires reporting by field, Members may report data for a portion of a field or for multiple fields provided that the reported area has (1) the same crop type (i.e. crops with similar nitrogen and irrigation management needs) and (2) the same fertilizer inputs and irrigation management.

²⁵ Irrigation and Nitrogen Management Plans are prepared in advance of the crop season, and based on circumstances that are forecasted. However, due to changes in weather, water availability, and other unanticipated circumstances, growers may find it necessary to adjust the Irrigation and Nitrogen Management Plan as originally prepared. Such adjustments are not considered to be violations of the Order, provided the revision maintains compliance with provision of this Order. Should such adjustments be necessary, the member must document the reasons for adjustments in the Irrigation and Nitrogen Management Plan retained at the grower's place of business and report the reasons to the third-party with the Irrigation and Nitrogen Management Plan Summary Report.

²⁶ Whether a specific category of crops is appropriate for multi-year INMPs will depend on factors such as crop age, the level of variation of irrigation and fertilization practices from year to year, variation of cultivation practices, and climate zone. Likely candidates for multi-year INMPs include mature orchards that are managed consistently over multiple years.

²⁷ As defined in Attachment E.

²⁸ As defined in Attachment E.

A/R Ratio

$$= \frac{\text{Nitrogen Applied (from any source, including organic amendments, synthetic fertilizers, manure and irrigation water)}}{\text{Nitrogen Removed (via harvest and annually sequestered in permanent wood of perennial crops)}}$$

$$\text{A-R Difference} = \text{Nitrogen Applied} - \text{Nitrogen Removed}$$

Total Nitrogen Removed shall be determined, in part, by multiplying a member's crop yield by a crop-specific nitrogen coefficient, C_N , provided by the third-party, which represents the amount of nitrogen in the harvested crop. For some crops, the data needed to develop the C_N coefficient may not yet be available. The third-party is directed in Attachment B MRP Section VI.B to determine, through nitrogen removed testing and research, the most appropriate C_N coefficients for converting crop yield to nitrogen removed.

$$\text{Nitrogen Removed (lbs/acre)} = \text{Crop Yield (units/acre)} \times C_N \text{ (lbs/unit)}$$

The INMP shall be maintained at the Member's farming operations headquarters or primary place of business. The Member must provide the INMP to board staff, if requested, or should board staff or an authorized representative conduct an inspection of the Member's irrigated agricultural operation. The Member must submit the INMP Summary Report to the third-party in accordance with the schedule below. As provided in Attachment B MRP Section V, the third-party will provide certain INMP Summary Report data to the Executive Officer.

The INMP shall be certified in one of the following ways:

- Certified by an irrigation and nitrogen management plan specialist as defined in Attachment E of this Order. The specialist that certifies the INMP must be capable of answering questions relevant to the INMP and should be fully competent and proficient by education and experience in the field(s) relevant to the development of an INMP. These specialists may include Professional Soil Scientists, Professional Agronomists, Crop Advisers²⁹ certified by the American Society of Agronomy, Technical Service Providers certified in nutrient management in California by the National Resource Conservation Service (NRCS), or Certified Agricultural Irrigation Management Specialists certified by The Irrigation Association; or
- Self-certified by the Member who attends a California Department of Food and Agriculture or other Executive Officer approved training program for INMP certification. -The Member must retain written documentation of their attendance in the training program; or
- Self-certified by the Member that the plan adheres to a site-specific recommendation from the Natural Resources Conservation Service (NRCS) or the University of California Cooperative Extension. The Member must retain written documentation of the recommendation provided; or
- Self-certified by the Member if the Member states that the Member applies no fertilizer to the field; or

²⁹ Any Certified Crop Adviser who certifies an INMP must also have completed the nitrogen management training program offered by the University of California Agriculture and Natural Resources and the California Department of Food and Agriculture.

- Certified in an alternative manner approved by the Executive Officer. Such approval will be provided based on the Executive Officer's determination that the alternative method for preparing the Nitrogen Management Plan meets the objectives and requirements of this Order.

Members notified by the third-party as being outliers for reported AR data must have their INMP certified by an irrigation and nitrogen management plan specialist unless the Member receives additional self-certification training provided by the third-party.

1. Deadlines for Members within a High Vulnerability Groundwater Area

For Members located within a high vulnerability groundwater area, for which nitrate is identified as a constituent of concern, the Member must prepare and implement a certified INMP and submit an INMP Summary Report as follows:

a. Deadlines for Members with Small Farming Operations within High Vulnerability Groundwater Areas to facilitate Outreach of INMP to Members

By 1 March 2018, all Members within high vulnerability groundwater areas shall prepare a certified NMP. By 1 March 2019, all Members within high vulnerability groundwater areas shall submit to the third-party the NMP Summary Report for the previous year.

~~By 1 March 2017, Members with Small Farming Operations shall prepare, and update by 1 March annually thereafter, an INMP. By 1 March 2018, and by 1 March annually thereafter, Members with Small Farming Operations shall prepare a certified INMP, and submit to the third-party the INMP Summary Report for the previous year.~~

b. Deadlines for all other Members³⁰ within High Vulnerability Groundwater Areas implementing INMP Requirement

By 1 March ~~2015~~2019, all ~~other~~ Members within high vulnerability groundwater areas shall prepare, and update by 1 March annually thereafter, an certified INMP. By 1 March ~~2016~~2020, and by 1 March annually thereafter, all ~~other~~ Members within high vulnerability groundwater areas shall ~~prepare and implement a certified INMP and~~ submit to the third-party the INMP Summary Report for the previous year.

2. Deadlines for Members within a Low Vulnerability Groundwater Area

~~By 1 March 2017, by 1 March 2018, and by 1 March 2019~~2020, all Members within low vulnerability groundwater areas shall prepare an INMP. By 1 March 2021, and by 1 March annually thereafter, Members within low vulnerability groundwater areas shall submit to the third-party the INMP Summary Report for the previous year. By 1 March ~~2020~~2023, all Members within low vulnerability groundwater areas shall prepare, and update by 1 March annually thereafter, a certified INMP. ~~By 1 March 2021, and by 1 March annually thereafter, Members within low vulnerability groundwater areas shall submit to the third-party the INMP Summary Report for the previous year.~~

E. Drinking Water Supply Well Monitoring

Due to the potential severity and urgency of health issues associated with drinking groundwater with high concentrations of nitrates, Members will be required to conduct testing and monitoring of all

³⁰~~Members with parcels that do not meet the Small Farming Operation definition (see Attachment E).~~

drinking water supply wells present on the ~~Members' property~~enrolled parcels in accordance with the schedule in MRP section IV.A. If a well is identified as exceeding the MCL for nitrate, the Member must notify the Central Valley Water Board and ~~notify~~ users of the well in a timely fashion in accordance with the elements described in MRP section IV.A.

F. Mitigation Monitoring

As specified in this Order, certain members are required to implement the mitigation measures included in Attachment C. Such Members shall submit mitigation monitoring by 1 March of each year to the third-party. Mitigation monitoring shall include information on the implementation of CEQA mitigation measures, including the mitigation measure implemented, potential environmental impact the mitigation measure addressed, location of the mitigation measure [parcel number, county], and any steps taken to monitor the ongoing success of the measure.

G. Management Practice Implementation Reporting in Surface and Groundwater Quality Management Areas

Commencing on 1 March 2019, Members in areas subject to a SQMP or GQMP shall complete a Management Practice Implementation Report (MPIR) and submit a copy of the completed MPIR to the third-party group according to a schedule to be specified by the Third Party for each SQMP or GQMP and approved by the Executive Officer. The Member must use a MPIR form ~~unique to each~~based on SQMP or GQMP ~~templates~~and designed by the Third Party and approved by the Executive Officer. The MPIR shall report management practices implemented by the Member to comply with requirements under the SQMP or GQMP. The reporting frequency shall be based on the implementation cycle of the applicable management practice.

H. Notice of Termination

If the Member wishes to terminate coverage under this Order and withdraw its membership from the third-party, the Member shall submit a complete notice of termination (NOT) to the Central Valley Water Board and the third-party. Termination of regulatory coverage will occur on the date specified in the NOT, unless the Central Valley Water Board specifies otherwise. All discharges of waste to surface and groundwaters shall cease before the date of termination, and any discharges on or after this date shall be considered in violation of the California Water Code, unless other WDRs or waivers of WDRs regulate the discharge.

VIII. Required Reports and Notices – Third-Party

The Central Valley Water Board or the Executive Officer may require any of the reports and notices to be submitted electronically, as long as the electronic format is reasonably available to the third-party. The third-party shall submit reports and notices in accordance with section IX, Reporting Provisions. The third-party must prepare the following reports:

A. Application to Serve as a Third-Party Representing Members

Within 30 days of the effective date of this Order, the third-party must submit a letter to the Executive Officer requesting that the third-party serve as a third-party representing Members to carry out the third-party responsibilities. The Executive Officer will consider the following factors in determining whether to approve the request by issuing a Notice of Applicability (NOA) to the third-party.

1. Ability of the third-party to carry out the identified third-party responsibilities.
2. Whether the third-party is a legally defined entity (i.e., non-profit corporation; local or state government; Joint Powers Authority) or has a binding agreement among multiple entities that clearly describes the mechanisms in place to ensure accountability to its members.

3. Whether the third-party has binding agreements with any subsidiary group (e.g., subwatershed group) to ensure any third-party responsibilities carried out by the subsidiary group, including the collection of fees, are done so transparently and with accountability to the third-party. If the third-party will not rely on any subsidiary group to carry out any of its responsibilities, the third-party must state that in its application letter.
4. Whether the third-party has a governance structure that includes a governing board of directors composed in whole or in part of Members, or otherwise provides Members with a mechanism to direct or influence the governance of the third-party through appropriate by-laws.
5. Should the Central Valley Water Board terminate an organization's role as a third-party or the third-party submit a notice of termination, the Executive Officer will apply the above factors in evaluating the request of any successor organization to serve as a third-party and determining whether to approve the request by issuing an NOA.

B. Membership (Participant) List

The third-party shall submit a list of its Members to the Central Valley Water Board within 180-days of receiving an NOA from the board and then annually by 31 July of each year (beginning the year following initial submission of the list). The membership list shall identify Members. The list shall also identify growers that have had their membership revoked and Members that are pending revocation. The membership list shall contain, at a minimum, the following information for each member: all parcel numbers covered under the membership, the county of each parcel, the section, township, and range associated with each parcel, the number of irrigated acres for each parcel, the Member's name, mailing address, the contact name and phone number of the individuals authorized to provide access to the enrolled parcels, the name of the farm operator for each parcel, if different from the Member, and identification of each parcel that is part of a Small Farming Operation, if applicable. In lieu of providing Members' phone numbers as part of the membership list, the third-party may provide the office contact name(s) and phone number(s) of a representative of the third-party. Any listed third-party office contact must be available for Central Valley Water Board staff to contact Monday through Friday (except established state holidays) from 8 am to 5 pm.

C. Templates

Through the process described below, the Central Valley Water Board intends to provide templates to all Members that must be used to comply with the requirements of this Order. The board intends that these templates be developed by the third-party or Central Valley Water Board staff in coordination with other agricultural groups and experts to ensure the templates are applicable and relevant for Members. To the extent possible, the templates need to collect information consistently across irrigated agricultural areas and commodities. Consistent information collection will facilitate analysis within a geographic area and across the Central Valley. However, the board recognizes that templates may vary (e.g., by commodity group) and may need to be tailored more specifically to ensure relevant information is collected. For example, templates for irrigated pasture would focus on collecting different types of data than templates for orchards.

1. Farm Evaluation Template

Template development shall be in accordance with the requirements specified in Attachment B MRP section VI.A. Templates will be developed as follows:

a. Third-Party Farm Evaluation Template

The third-party may work with Central Valley Water Board staff in the development of a Farm Evaluation Template. Should it choose this option, the third-party shall make the Farm Evaluation

Template available to its Members within 30-days of receiving the final Farm Evaluation Template as provided by the Central Valley Water Board's Executive Officer. Requirements for the Farm Evaluation Template are described in Attachment B MRP section VI.A., or

b. Farm Evaluation Template Group Option

The third-party may develop a Farm Evaluation Template with other agricultural water quality coalitions and agricultural commodity groups. Should it choose the group option, the third-party shall submit a Farm Evaluation Template to the Central Valley Water Board within 90-days from receiving an NOA from the board. The third-party shall make the Farm Evaluation Template available to its Members within 30-days of approval by the Executive Officer. Requirements for the Farm Evaluation Template are described in Attachment B MRP section VI.A.

2. Irrigation and Nitrogen Management Plan (INMP) and INMP Summary Report Templates

Template development shall be in accordance with the requirements specified in Attachment B MRP section VI.B to this Order. Templates will be developed as follows:

a. Third-Party INMP Template and INMP Summary Report

The third-party may work with Central Valley Water Board staff in the development of an INMP Template and INMP Summary Report. Should it choose this option, the third-party shall make the INMP Template and INMP Summary Report available to its Members within 30-days of receiving the final INMP Template and INMP Summary Report as provided by the Central Valley Water Board's Executive Officer. Requirements for the INMP Template and INMP Summary Report are describe in Attachment B MRP section VI.B, or

b. INMP Template and INMP Summary Report Group Option

The third-party may develop an INMP Template and INMP Summary Report with other agricultural water quality coalitions and agricultural commodity groups. Should it choose the group option, the third-party shall submit the INMP Template and INMP Summary Report to the Central Valley Water Board's Executive Officer within 90-days from receiving an NOA from the board. The third-party shall make the INMP Template and INMP Summary Report available to its Members within 30-days of approval by the Central Valley Water Board Executive Officer. Requirements for the INMP Template and INMP Summary Report are described in Attachment B MRP section VI.B.

3. Sediment and Erosion Control Plan Template

Template development shall be in accordance with the requirements specified in Attachment B MRP section VI.C. Templates will be developed as follows:

a. Sediment and Erosion Control Plan Template Group Option

The third-party may develop a Sediment and Erosion Control Plan Template with other agricultural water quality coalitions and agricultural commodity groups. Should it choose the group option, the third-party shall submit the Sediment and Erosion Control Plan Template to the Central Valley Water Board's Executive Officer within 90-days from receiving an NOA from the board. The third-party shall make the Sediment and Erosion Control Plan Template available to

its Members within 30-days of approval by the Central Valley Water Board Executive Officer. Requirements for the Sediment and Erosion Control Plan Template Group Option are described in MRP section VI.C, or

b. Central Valley Water Board Sediment and Erosion Control Plan Template

The third-party shall work with Central Valley Water Board staff in the development of a Sediment and Erosion Control Plan Template. Should it choose this option, the third-party shall make the final Sediment and Erosion Control Plan Template available to those Members required to develop a Sediment and Erosion Control Plan within 30-days of receiving the final Sediment and Erosion Control Plan Template as provided by the Central Valley Water Board's Executive Officer.

4. Drinking Water Notification Template

Template development shall be in accordance with the requirements specified in Attachment B MRP section VI.D.

a. Third-Party Drinking Water Notification Template

The third-party may work with Central Valley Water Board staff in the development of a Drinking Water Notification Template. Should it choose this option, the third-party shall make the template available to its Members within 30-days of approval by the Executive Officer. Requirements for the Drinking Water Notification Template are described in Attachment B MRP section VI.D., or

b. Drinking Water Notification Template Group Option

The third-party may develop a Drinking Water Notification Template with other agricultural water quality coalitions and agricultural commodity groups. Should it choose the group option, the third-party shall make the template available to its Members within 30-days of approval by the Executive Officer. Requirements for the Drinking Water Notification Template are described in Attachment B MRP section VI.D.

D. Annual Report on Management Practice Implementation and Nitrogen Application

On 1 July 2019, and annually thereafter, the third-party shall submit to the Executive Officer data on management practice implementation and nitrogen application as specified in Attachment B MRP sections V.C and V.D.

E. Groundwater Quality Monitoring and Protection

This Order's strategy for evaluating groundwater quality and protection consists of (1) Drinking Water Supply Well Monitoring, (2) a Groundwater Assessment Report, (3) a Management Practices Evaluation Program, and (4) a Groundwater Quality Trend Monitoring Program. Each of these elements has its own specific objectives briefly described below, with more detail provided in the attached MRP.

1. Drinking Water Supply Well Monitoring

In Section VII.E, this Order requires Members to conduct testing and monitoring of all drinking water supply wells present on the Members' property. The third-party, on behalf of Members, may conduct testing and monitoring of all drinking water supply wells present on the Members' property. If a well is identified as exceeding the MCL for nitrate, the Member must notify the Central Valley Water Board and ~~must then notify~~ users of the well in a timely fashion in accordance with the elements described in Attachment B MRP section IV.A.

2. Groundwater Quality Assessment Report

The Groundwater Quality Assessment Report (GAR) provides the foundational information necessary for design of the Management Practices Evaluation Program, the Groundwater Quality Trend Monitoring Program, and the Groundwater Quality Management Plan. To accomplish this purpose, the GAR must include the following:

- Assessment of all available, applicable, and relevant data and information to determine the high and low vulnerability areas where discharges from irrigated lands may result in groundwater quality degradation;
- Establish priorities for implementation of monitoring and associated studies within high vulnerability areas;
- Provide a basis for establishing workplans to assess groundwater quality trends;
- Provide a basis for establishing workplans and priorities to evaluate the effectiveness of agricultural management practices to protect groundwater quality; and
- Provide a basis for establishing groundwater quality management plans in high vulnerability areas and priorities for implementation of those plans.

The GAR shall include the elements described in Attachment B MRP section IV. The GAR shall be submitted to the Central Valley Water Board and Central Valley Salinity Coalition within one (1) year of receiving an NOA from the Executive Officer.

3. Management Practice Evaluation Program Workplan

Upon Executive Officer approval of the GAR, the third-party shall develop, either solely, or as a coordinated effort (see group option below), a Management Practice Evaluation Program (MPEP) Workplan. The workplan must meet the goals, objectives, and other requirements described in Attachment B MRP section IV.C. The MPEP shall initially focus of the determination of the crop-specific coefficients for conversion of yield to nitrogen removed and then on the determination of acceptable ranges for the multi-year A/R ratios target values buy crop. Following the initial focus, the overall goal of the Management Practice Evaluation Program (MPEP) is to evaluate the effectiveness of management practices in limiting the discharge of waste from irrigated lands to groundwater under different conditions (e.g., soil type, depth to groundwater, irrigation practice, crop type, nutrient management practice). A MPEP may prioritize the conditions relevant to high vulnerability groundwater areas. The third-party may develop the workplan in accordance with one of the options described below.

a. Management Practices Evaluation Program Group Option

The third-party may fulfill its requirements as part of a larger Management Practices Evaluation Program Group. A Management Practices Evaluation Program (MPEP) Group refers to an entity that is formed to develop and carry out the management practices effectiveness evaluations required of this and other Orders applicable to the irrigated lands in the Central Valley.

At the time the GAR is submitted, the third-party must submit a copy of the agreement of the parties included in the MPEP Group. The agreement must include a description of the roles and responsibilities of each of the organizations in the MPEP Group; identification of the technical experts who will prepare and implement the workplans, along with their qualifications; the person(s) responsible for the timely completion of the workplans and reports required by this Order; and an organizational chart showing the reporting relationships and responsibilities of the participants in the group.

The third-party may use the group option if approved by the Executive Officer. The Executive Officer may disapprove the use of the group option, if 1) the group fails to meet required

deadlines or implement the approved workplans; 2) the agreement submitted is not complete; or 3) the agreement submitted is deficient.

The MPEP Group Workplan shall be submitted to the Central Valley Water Board within two (2) years after written approval of the GAR by the Executive Officer.

b. *Third-party Only Management Practices Evaluation Program*

Under this option, the third-party MPEP Workplans shall be submitted to the Central Valley Water Board within one (1) year after written approval of the GAR by the Executive Officer.

4. *Groundwater Quality Trend Monitoring Workplan*

Upon Executive Officer approval of the GAR, the third-party shall develop a Groundwater Quality Trend Monitoring Workplan. The workplan must meet the goals, objectives, and other requirements described in Attachment B MRP section IV. The overall objectives of groundwater trend monitoring are to determine current water quality conditions of groundwater relevant to irrigated agriculture and develop long-term groundwater quality information that can be used to evaluate the regional effects of irrigated agricultural practices. The workplan shall be submitted to the Central Valley Water Board within one (1) year after written approval of the GAR by the Executive Officer.

F. *Sediment Discharge and Erosion Assessment Report*

The Sediment Discharge and Erosion Assessment Report shall be submitted to the Central Valley Water Board within one (1) year of receiving an NOA from the Executive Officer. Within 30 days of written acceptance of the Sediment Discharge and Erosion Assessment Report, the third-party shall inform those Members with parcels in areas identified in the report of their obligation to prepare a Sediment and Erosion Control Plan. The Sediment Discharge and Erosion Assessment Report shall include the elements described in Attachment B MRP section VII.

G. *Surface Water Exceedance Reports*

The third-party shall provide exceedance reports if surface water monitoring results show exceedances of adopted numeric water quality objectives or trigger limits, which are based on interpretations of narrative water quality objectives. Surface water exceedance reports shall be submitted in accordance with the requirements described in Attachment B MRP section V.D.

H. *Monitoring Report*

The third-party shall submit the Monitoring Report to the Central Valley Water Board in accordance with the requirements in Attachment B MRP section V.E.

I. *Surface Water/Groundwater Quality Management Plan (SQMP/GQMP)*

1. *SQMP/GQMP General Requirements*

SQMP/GQMPs submitted by the third-party shall conform to the requirements provided in the MRP, Appendix MRP-1. Existing SQMPs that were developed and approved under the Coalition Group Conditional Waiver (Conditional Waiver Order R5-2006-0053) continue to apply under this Order and shall be implemented as previously approved. Changes to any management plan may be implemented by the third-party only after approval by the Executive Officer. The Executive Officer may require changes to a management plan if the current management plan approach is not making adequate progress toward addressing the water quality problem or if the information reported by the third-party does not allow the Central Valley Water Board to determine the

effectiveness of the management plan. Members shall comply with the revised management plans once they are approved by the Executive Officer.

For newly triggered SQMP/GQMPs, the third-party shall submit a SQMP/GQMP to the Central Valley Water Board within sixty (60) days. For any SQMP or GQMP that addresses salt or nitrates, the SQMP or GQMP shall also be submitted to the Chair of the CV-SALTS Executive Committee. This 60-day period begins the first business day after the third-party's receipt of the field or laboratory results that reported the triggering exceedance. The Central Valley Water Board will post the proposed SQMP/GQMP for a public review and comment period. Stakeholder comments will be considered by Central Valley Water Board staff to determine if additional revisions are appropriate. The third-party may, at its discretion, implement outreach or monitoring contained in a proposed management plan before approval. Members shall comply with the management plans once they are approved by the Executive Officer.

The third-party shall ensure continued implementation of SQMP/GQMPs until completed by the Executive Officer pursuant to the provisions contained in Attachment B MRP, Appendix MRP-1, section III. The third-party shall submit a progress report in compliance with the provisions contained in Attachment B MRP, Appendix MRP-1, section I.F.

2. Conditions Requiring Preparation of SQMP/GQMP

a. Surface Water Quality Management Plan (SQMP)

A SQMP shall be developed by the third-party where: (1) an applicable water quality objective or applicable water quality trigger limit is exceeded (considering applicable averaging periods³¹) twice in a three year period for the same constituent at a monitoring location (trigger limits are described in section VIII of the MRP) and irrigated agriculture may cause or contribute to the exceedances; (2) the Basin Plan requires development of a surface water quality management plan for a constituent or constituents discharged by irrigated agriculture, or (3) the Executive Officer determines that irrigated agriculture may be causing or contributing to a trend of degradation of surface water that may threaten applicable Basin Plan beneficial uses.

b. Groundwater Quality Management Plan (GQMP)

A GQMP shall be developed by the third-party where: (1) there is a confirmed exceedance³² (considering applicable averaging periods) of a water quality objective or applicable water quality trigger limit (trigger limits are described in section VIII of the MRP) in a groundwater well and irrigated agriculture may cause or contribute to the exceedance; (2) in high vulnerability groundwater areas to be determined as part of the Groundwater Assessment Report process (see MRP section IV); (3) the Basin Plan requires development of a groundwater quality

³¹ Exceedances of water quality objectives or water quality triggers will be determined based on any available data, including data from a regional monitoring program, and application of the appropriate averaging period. The averaging period is typically defined in the Basin Plan, as part of the water quality standard established by the USEPA, or as part of the criteria being used to interpret narrative objectives. If averaging periods are not defined in the Basin Plan, USEPA standard, or criteria, or approved water quality trigger, the Central Valley Water Board will use the best available information to determine an appropriate averaging period.

³² A "confirmed exceedance of a water quality objective in a groundwater well" means that the monitoring data are determined to be of the appropriate quality and quantity necessary to verify that an exceedance has occurred. The determination of an exceedance may be based on data obtained by the Regional Water Board from any source and made available in Geotracker, including pesticide-related monitoring data collected by the Department of Pesticide Regulation.

management plan for a constituent or constituents discharged by irrigated agriculture; or (4) the Executive Officer, upon consideration of State Water Board Hydrogeologically Vulnerable Areas and the Department of Pesticide Regulation Groundwater Protection Areas and other relevant information, determines that irrigated agriculture may be causing or contributing to exceedances of water quality objectives or a trend of degradation of groundwater that may threaten applicable Basin Plan beneficial uses.

If the extent of Member contribution to a water quality exceedance(s) or degradation trend is unknown, the third-party may propose activities to be conducted to determine the cause, or eliminate irrigated agriculture as a potential source instead of initiating a management plan. Requirements for source identification studies are set forth in Attachment B MRP, Appendix MRP-1, section I.G.

3. SQMP/GQMP Not Required

At the request of the third-party or upon recommendation by Central Valley Water Board staff, the Executive Officer may determine that the development of a SQMP/GQMP is not required. Such a determination may be issued if there is sufficient evidence indicating that Members discharging waste to the affected surface or groundwater are meeting the receiving water limitations given in section III of this Order (e.g., evidence indicates that irrigated agriculture does not cause or contribute to the water quality problem) or the Executive Officer determines that the exceedance is not likely to be remedied or addressed by a management plan.

4. Comprehensive Groundwater Quality Management Plan

In lieu of submitting separate groundwater quality management plans in the timeframe identified in section VIII.H.1, the third-party may submit a Comprehensive Groundwater Quality Management Plan within 60 days of the Executive Officer's approval of the Groundwater Quality Assessment Report. With the exception of the timeframe identified in section VIII.H.1, all other provisions applicable to groundwater quality management plans in this Order and the associated MRP apply to the Comprehensive Groundwater Quality Management Plan. The Comprehensive Groundwater Quality Management Plan must be updated at the same time as the Management Plan Progress Report (see Attachment B MRP, Appendix MRP-1, section I.F) to address any constituents and areas that would have otherwise required submittal of a Groundwater Quality Management Plan.

5. Comprehensive Surface Water Quality Management Plan

In lieu of submitting separate surface water quality management plans in the timeframe identified in section VIII.H.1, the third-party may submit a Comprehensive Surface Water Quality Management Plan or update the Surface Water Quality Management Plan approved under the Coalition Group Conditional Waiver to conform to this Order and MRP. With the exception of the timeframe identified in section VIII.H.1, all other provisions applicable to surface water quality management plans in this Order and Attachment B MRP apply to the Comprehensive Surface Water Quality Management Plan or an updated Surface Water Quality Management Plan approved under the Coalition Group Conditional Waiver. The Comprehensive Surface Water Quality Management Plan must be updated at the same time as the Management Plan Progress Report (see Attachment B MRP, Appendix MRP-1, section I.F) to address any constituents and areas that would have otherwise required submittal of a Surface Water Quality Management Plan.

J. Technical Reports

Where monitoring required by this Order is not effective in allowing the board to determine the effects of irrigated agricultural waste discharge on state waters or the effectiveness of water quality management practices being implemented, the Executive Officer may require technical reports be provided to determine the effects of irrigated agricultural operations or implemented management practices on surface water or groundwater quality.

K. Notice of Termination

If the third-party wishes to terminate its role in carrying out the third-party responsibilities set forth in section VIII of this Order and other applicable provisions, the third-party shall submit a notice of termination letter to the Central Valley Water Board and all of its Members. Termination of the third-party will occur 30-days from submittal of the notice of termination letter, unless otherwise specified in the letter. With its notice of termination sent to its Members, the third-party shall inform its Members of their obligation to obtain coverage under other WDRs or a waiver of WDRs for their discharges, or inform such Members that they shall cease all discharges of waste to surface and groundwaters.

L. Total Maximum Daily Load (TMDL) Requirements

Approved TMDLs in the Basin Plan that apply to water bodies within the third-party's geographic area and have allocations for irrigated agriculture shall be implemented in accordance with the applicable Basin Plan provisions. Where required, the third-party shall coordinate with Central Valley Water Board staff to develop a monitoring design and strategy for TMDL implementation. Where applicable, SQMPs shall address TMDL requirements.

IX. Reporting Provisions

1. Members and the third-party must submit required reports and notices in accordance with the requirements in this Order and attached Monitoring and Reporting Program Order R5-2012-0116-R4, unless otherwise requested by the Executive Officer.
2. All reports shall be accompanied by a cover letter containing the certification specified in section IX.3 below. The cover letter shall be signed by a person identified below, or by a duly authorized representative of that person:

For all reports:

- a. For a sole proprietorship: by the proprietor;
- b. For a partnership: by a general partner;
- c. For a corporation or the third-party: by a principal executive officer of at least the level of senior vice-president.

A person is a duly authorized representative only if:

- i. The authorization is made in writing by a person described in subsection a, b, or c of this provision; and
- ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the facility or organization, such as the position of manager. A duly authorized representative may thus be either a named individual or an individual occupying a named position; and
- iii. The written authorization is submitted to the Central Valley Water Board.

3. Each person signing a report required by this Order or other information requested by the Central Valley Water Board shall make the 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.”

4. All reports prepared and submitted to the Executive Officer in accordance with the terms of this Order will be made available for public inspection at the offices of the Central Valley Water Board, except for reports, or portions of such reports, subject to an exemption from public disclosure in accordance with California law and regulations, including the Public Records Act, Water Code section 13267(b)(2), and the California Food and Agriculture Code. If the third-party or a Member of the third-party asserts that all or a portion of a report is subject to an exemption from public disclosure, it must clearly indicate on the cover of the report that it asserts that all or a portion of the report is exempt from public disclosure. The complete report must be submitted with those portions that are asserted to be exempt in redacted form, along with separately-bound unredacted pages (to be maintained separately by staff). The Member/third-party shall identify the basis for the exemption. If the Executive Officer cannot identify a reasonable basis for treating the information as exempt from disclosure, the Executive Officer will notify the Member/third-party that the information will be placed in the public file unless the Central Valley Water Board receives, within 10 calendar days, a satisfactory explanation supporting the claimed exemption. Data on waste discharges, water quality, meteorology, geology, and hydrogeology shall not be considered confidential. NOIs shall generally not be considered exempt from disclosure.
5. To the extent feasible, all reports submitted by Members shall be submitted electronically to irrlands@waterboards.ca.gov, unless the Member is unable to submit the report electronically. If unable to submit the report electronically, the grower shall mail or personally deliver the report to the Central Valley Water Board. All reports from the third-party shall be submitted electronically to its Central Valley Water Board-assigned staff liaison. Upon notification by the Central Valley Water Board, all reports shall be submitted directly into an online reporting system, to the extent feasible.

X. Record-keeping Requirements

The Member and the third-party shall maintain any reports or records required by this Order for ten years. Records maintained by the third-party include reports and plans submitted by Members to the third-party for purposes of complying with this Order. Individual Member information used by the third-party to prepare required reports must be maintained electronically and associated with the Member submitting the information. The maintained reports or records, including electronic information, shall be made available to the Central Valley Water Board upon written request of the Executive Officer. This includes all monitoring information, calibration and maintenance records of sampling equipment, copies of reports required by this Order, and records of all data used to complete the reports. Records shall be maintained for a minimum of ten years from the date of sample, measurement, report, or application. This ten-year period shall be extended during the course of any unresolved litigation regarding the discharge or when requested in writing by the Executive Officer.

The Third Party shall propose a mechanism for backing up and storing the field-specific data submitted on the Farm Evaluations, the INMP Summary Reports, and the MPIRs in a secure offsite location managed by an independent entity that specializes in the protection of data. Upon approval of the mechanism by the Executive Officer, the Third Party shall implement the mechanism and provide documentation of the transfer of data to the independent entity.

XI. Annual Fees

1. Water Code section 13260(d)(1)(A) requires persons subject to waste discharge requirements to pay an annual fee established by the State Water Resources Control Board (State Water Board).
2. Members shall pay an annual fee to the State Water Board in compliance with the Waste Discharge Requirement fee schedule set forth at 23 CCR section 2200. The third-party is responsible for collecting these fees from Members and submitting them to the State Water Board on behalf of Members.

XII. Time Schedule for Compliance

When a SQMP or GQMP is required pursuant to the provisions in section VIII.H, the following time schedules shall apply as appropriate in order to allow Members sufficient time to achieve compliance with the surface and groundwater receiving water limitations described in section III of this Order. The Central Valley Water Board may modify these schedules based on evidence that meeting the compliance date is technically or economically infeasible, or when evidence shows that compliance by an earlier date is feasible (modifications will be made per the requirements in section VI of this Order). Any applicable time schedules for compliance established in the Basin Plan supersedes the schedules given below (e.g., time schedules for compliance with salinity standards that may be established in future Basin Plan amendments through the CV-SALTS process, or time schedules for compliance with water quality objectives subject to an approved TMDL).

Surface water: The time schedule identified in the SQMP for compliance with Surface Water Limitation III.A must be as short as practicable, but may not exceed 10 years from the date the SQMP is submitted for approval by the Executive Officer. The proposed time schedule in the SQMP must be supported with appropriate technical or economic justification as to why the proposed schedule is as short as practicable.

Groundwater: The time schedule identified in a GQMP for compliance with Groundwater Limitation III.B must be as short as practicable, but may not exceed 10 years from the date the GQMP is submitted for approval by the Executive Officer. The proposed time schedules in the GQMP must be supported with appropriate technical or economic justification as to why the proposed schedules are as short as practicable.

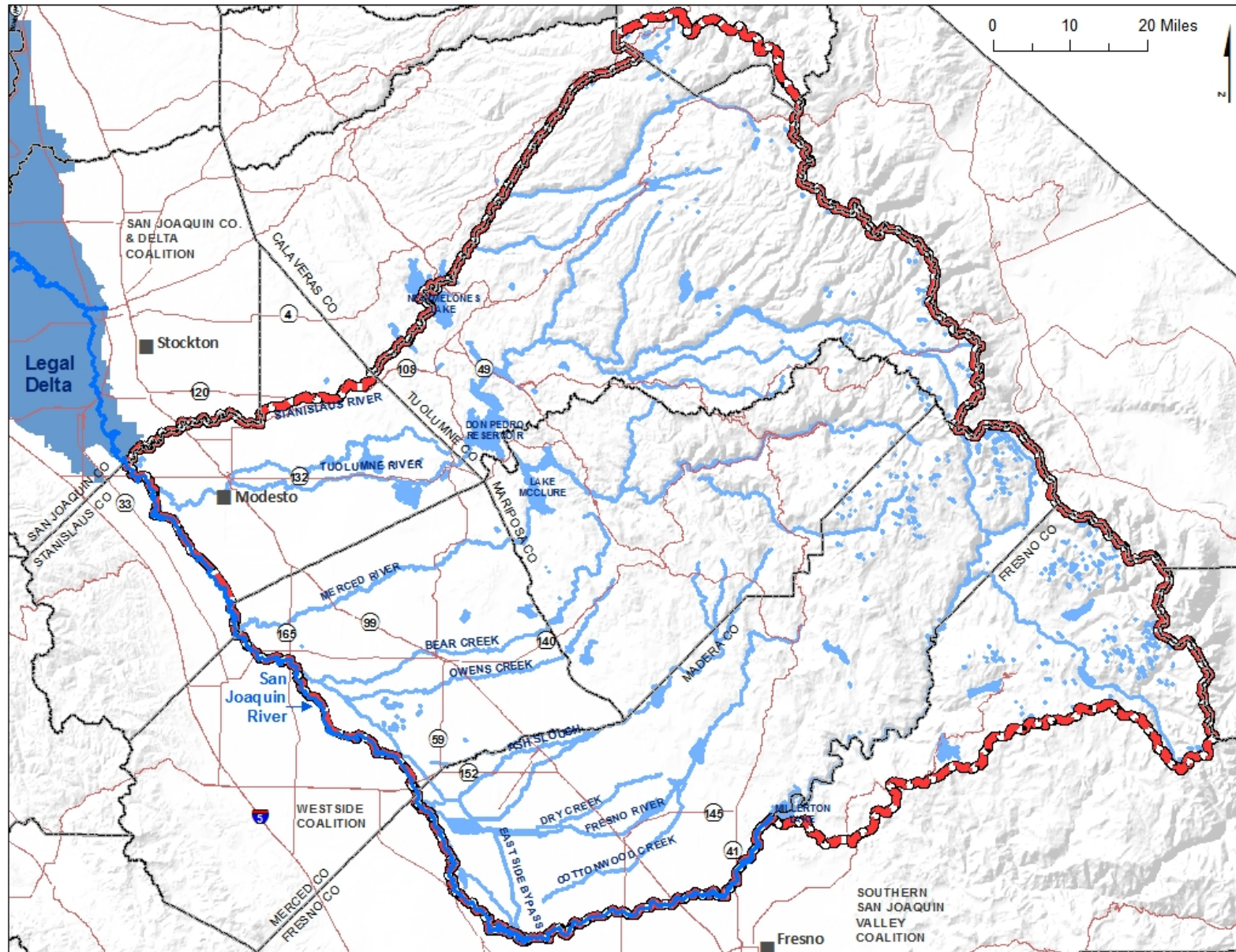
This Order becomes effective on 7 December 2012 and remains in effect as revised on 17 April 2015 unless rescinded or further revised by the Central Valley Water Board.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region on 7 December 2012, and revised on 3 October 2013, 27 March 2014, and 17 April 2015.

Original signed by

PAMELA C. CREEDON, Executive Officer

Figure 1. Map of the Eastern San Joaquin River Watershed Area.



[Attachment 2b](#)

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

ORDER R5-2012-0116-R4
**ATTACHMENT B TO ORDER R5-2012-0116-R4
MONITORING AND REPORTING PROGRAM**

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
GROWERS WITHIN THE EASTERN SAN JOAQUIN RIVER WATERSHED
THAT ARE MEMBERS OF THE THIRD-PARTY GROUP

TABLE OF CONTENTS

[note that the pagination is inaccurate due to track changes]

I. Introduction	3
II. General Provisions.....	3
III. Surface Water Quality Monitoring Requirements.....	4
A. Surface Water Monitoring Sites	4
1. Core Site Monitoring	4
2. Represented Site Monitoring	5
3. Special Project Sites.....	5
B. Monitoring Locations	5
C. Monitoring Requirements and Schedule.....	7
1. Surface Water Monitoring	7
2. Monitoring Schedule and Frequency	7
3. Monitoring Parameters	8
4. Toxicity Testing.....	10
5. Special Project Monitoring	12
D. Surface Water Data Management Requirements.....	12
IV. Groundwater Quality Monitoring and Management Practice Assessment, and Evaluation Requirements	13
A. Drinking Water Supply Well Monitoring	14
B. Groundwater Quality Assessment Report	15
C. Management Practice Evaluation Program	17
D. Groundwater Quality Trend Monitoring	19
E. Management Practices Evaluation Workplan	20
F. Trend Monitoring Workplan	21
V. Third-Party Reporting Requirements.....	22
A. Quarterly Submittals of Surface Water Monitoring Results.....	22
B. Annual Groundwater Monitoring Results.....	23
C. Annual Management Practice Implementation Data.....	23
D. Annual Irrigation and Nitrogen Management Plan Summary Report Data.....	24
E. Monitoring Report	27
F. Surface Water Exceedance Reports	30
VI. Templates – Third Party and Group Options	30
A. Farm Evaluation Template	30

B. Irrigation and Nitrogen Management Plan (INMP) and INMP Summary Report Templates ..	31
C. Sediment and Erosion Control Plan Template.....	36
VII. Sediment Discharge and Erosion Assessment Report	37
VIII. Water Quality Triggers for Development of Management Plans.....	37
IX. Quality Assurance Project Plan (QAPP).....	38

Appendix MRP-1: Third-Party Management Plan Requirements
Appendix MRP-2: Monitoring Well Installation and Sampling Plan and Completion Report

I. Introduction

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code (Water Code) section 13267 which authorizes the California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board or “board”), to require preparation and submittal of technical and monitoring reports. This MRP includes requirements for a third-party representative entity assisting individual irrigated lands operators or owners that are members of the third-party (Members), as well as requirements for individual Members subject to and enrolled under Waste Discharge Requirements General Order for Growers within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group, Order R5-2012-0116-R4 (hereafter referred to as the “Order”). The requirements of this MRP are necessary to monitor Member compliance with the provisions of the Order and determine whether state waters receiving discharges from Members are meeting water quality objectives. Additional discussion and rationale for this MRP’s requirements are provided in Attachment A of the Order.

This MRP establishes specific surface and ground water monitoring, reporting, and electronic data deliverable requirements for the third-party. Due to the nature of irrigated agricultural operations, monitoring requirements for surface waters and groundwater will be periodically reassessed to determine if changes should be made to better represent irrigated agriculture discharges to state waters. The monitoring schedule will also be reassessed so that constituents are monitored during application and/or release timeframes when constituents of concern are most likely to affect water quality. The third-party shall not implement any changes to this MRP unless the Central Valley Water Board or the Executive Officer issues a revised MRP.

II. General Provisions

This Monitoring and Reporting Program (MRP) conforms to the goals of the Non-point Source (NPS) Program as outlined in *The Plan for California’s Nonpoint Source Pollution (NSP) Program* by:

- tracking, monitoring, assessing and reporting program activities,
- ensuring consistent and accurate reporting of monitoring activities,
- targeting NPS Program activities at the watershed level,
- coordinating with public and private partners, and
- tracking implementation of management practices to improve water quality and protect existing beneficial uses.

Monitoring data collected to meet the requirements of the Order must be collected and analyzed in a manner that assures the quality of the data. The third-party must follow 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) and any revisions thereto approved by the Executive Officer.¹

To the extent feasible, all technical reports required by this MRP must be submitted electronically in a format specified by the Central Valley Water Board that is reasonably available to the third-party.

This MRP requires the third-party to collect information from its Members and allows the third-party to report the information to the board in a summary format. The third-party must submit specific Member information collected as part of the Order and this MRP when requested by the Executive Officer or as specified in the Order.

¹ Central Valley Water Board staff will circulate proposed revisions of the QAPP Guidelines for public review and comment prior to Executive Officer consideration for approval.

This MRP Order becomes effective on 7 December 2012. The Central Valley Water Board Executive Officer may revise this MRP as necessary. Upon the effective date of this MRP, the third-party, on behalf of the individual Members, shall implement the following monitoring and reporting.

III. Surface Water Quality Monitoring Requirements

The third-party may elect to participate in an Executive Officer approved Regional Monitoring Program (RMP) [such as the Delta RMP]. If the third-party elects to participate in a RMP, the third-party may submit a proposal to the Executive Officer for approval to reduce some elements of the surface water monitoring requirements described below and instead provide funding and/or in-kind support to an approved RMP. Participation in a Regional Monitoring Program by a third-party shall consist of providing funds and/or in-kind services to the Regional Monitoring Program at least equivalent to discontinued individual monitoring and study efforts. Written approval of the third-party's request, by the Executive Officer, is required prior to discontinuing any monitoring. Approval by the Executive Officer is not required prior to participating in a Regional Monitoring Program.

If the third-party participates in an Executive Officer approved Regional Monitoring Program in lieu of conducting individual surface water monitoring, the third-party shall continue to participate in the Regional Monitoring Program until such time as the third-party informs the Board that participation in the Regional Monitoring Program will cease and the monitoring prior to approved reductions is reinstated. Executive Officer approved reduced monitoring may continue so long as the third-party adequately supports the Regional Monitoring Program. If the Discharger fails to adequately support the Regional Monitoring Program, as defined by the Regional Monitoring Program, the third-party shall reinstate monitoring required prior to approved reductions upon written notice from the Executive Officer.

A. Surface Water Monitoring Sites

There are three different types of monitoring sites described below: 1) Core sites; 2) Represented sites; and 3) Special Project sites. Core sites are monitored comprehensively on an ongoing basis to track trends in surface water quality and to identify water quality problems. Represented sites generally have characteristics similar to, and are, therefore, represented by the Core sites within their common zone.² When a water quality problem is identified at a Core site, the represented sites are evaluated and potentially monitored to determine whether the water quality problem is also occurring at the Represented site (some represented water bodies may not have a monitoring site, e.g. in cases when there is no access). Special Project sites are identified and monitored to investigate identified water quality problems. A Core site or Represented site may also be a Special Project site.

1. Core Site Monitoring

At a minimum, surface water monitoring (as described in section III.C.1) within each zone shall be conducted at one of the designated Core sites (see Table 1) for two consecutive years, followed by two years of monitoring at the second Core monitoring site. Core site monitoring shall alternate continuously between the two Core sites. When a water quality objective or trigger limit at a

² As part of their 25 August 2008 Monitoring and Reporting Program Plan (2008 MRPP), the East San Joaquin Water Quality Coalition (the Coalition) designated six zones within its area based on hydrology, crop types, land use, soil types, and rainfall. The zones identified in the 2008 MRPP are the same zones as those identified in Table 1.

monitored Core site is exceeded, the parameter associated with the exceedance must be monitored for a third consecutive year.³

2. Represented Site Monitoring

When a water quality objective or trigger limit is exceeded at a Core site, the third-party must evaluate the potential for similar risks or threats to water quality associated with that parameter at the sites represented by the Core site (Represented sites). The evaluation must be included in the Monitoring Report (see section V below). If pesticide use information or other factors indicate a risk, monitoring for that parameter must be performed in the appropriate Represented water bodies. The proposed monitoring plan must be included in the Monitoring Plan Update (see section III.C below). Any such monitoring must occur for a minimum of two years during the time period of highest risk of exceedance of water quality objectives for that parameter. When a water quality objective at a monitored Represented site is exceeded, the parameter associated with the exceedance must be monitored for a third consecutive year.⁴

Any watershed area that does not contain a monitoring site due to issues of access or location downstream of urban influence must be represented by the Core sites in that zone. Any applicable surface water quality management plan (SQMP) actions associated with the Core site must take place in these watershed areas (represented drainages without monitoring sites).

3. Special Project Sites

In addition to Core and Represented sites, the third-party may designate Special Project sites as needed in a surface water quality management plan (SQMP) to evaluate commodity or management practice-specific effects on identified water quality problems,⁵ or to evaluate sources of identified water quality problems.

The Executive Officer may require the third-party to conduct local or site-specific monitoring to address a parameter associated with a management plan or TMDL (see section III.C.5. below). Core sites and Represented sites located in areas where management plans are required will also be considered Special Project sites for the parameter(s) subject to the management plan(s).

B. Monitoring Locations

The location of Core and monitored Represented sites are identified in Table 1 below. The third-party may submit written requests (including technical justification) for removal/addition of monitoring sites for approval by the Executive Officer.

Table 1. Third-party Core and Monitored Represented* Sites By Zone

ID	Zone	Site Type	Site Name	Station Code	Latitude	Longitude
B	1	Core	Dry Creek @ Wellsford Rd	535XDCAWR	37.6602	-120.8743
	1	Core	TBD ⁶			
F	2	Core	Prairie Flower Drain @ Crows Landing Rd	535XPFDCL	37.4422	-121.0024

³ If two exceedances have occurred within the two years the Core site is being monitored, a third year of monitoring is not required. However, the parameter would need to be monitored in accordance with the Management Plan for that parameter and site.

⁴ If two exceedances have occurred within the two years the Represented site is being monitored, a third year of monitoring is not required. However, the parameter would need to be monitored in accordance with the Management Plan for that parameter and site.

⁵ "Water quality problem" is defined in Attachment E.

⁶ "To be determined" (TBD) monitoring sites will be established by the third-party and the Water Board.

Table 1. Third-party Core and Monitored Represented* Sites By Zone

ID	Zone	Site Type	Site Name	Station Code	Latitude	Longitude
	2	Core	TBD			
D	3	Core	Highline Canal @ Hwy 99	535XHCHNN	37.4153	-120.7557
	3	Core	TBD			
E	4	Core	Merced River @ Santa Fe	535XMRSFD	37.4271	-120.6721
	4	Core	TBD			
C	5	Core	Duck Slough @ Gurr Rd	535XDSAGR	37.2142	-120.5596
	5	Core	TBD			
A	6	Core	Cottonwood Creek @ Rd 20	545XCCART	36.8686	-120.1818
	6	Core	TBD			
1	6	Represented	Ash Slough @ Ave 21	545XASAAT	37.05450	-120.41580
2	4	Represented	Bear Creek @ Kibby Rd	535XBCAKR	37.31280	-120.41380
3	6	Represented	Berenda Slough along Ave 18 1/2	545XBSAAE	37.01820	-120.32650
4	4	Represented	Black Rascal Creek @ Yosemite Rd	535BRCAYR	37.33210	-120.39470
6	4	Represented	Canal Creek @ West Bellevue Rd	535CCAWBR	37.36075	-120.54941
7	5	Represented	Deadman Creek @ Gurr Rd	535XDCAGR	37.19360	-120.56120
8	5	Represented	Deadman Creek @ Hwy 59	535DMCAHF	37.19810	-120.48690
9	6	Represented	Dry Creek @ Rd 18	545XDCARE	36.98180	-120.21950
11	2	Represented	Hatch Drain @ Tuolumne Rd	535XHDATA	37.51490	-121.01220
12	3	Represented	Highline Canal @ Lombardy Ave	535XHCHNN	37.45560	-120.72070
13	2	Represented	Hilmar Drain @ Central Ave	535XHDACA	37.39060	-120.95820
14	4	Represented	Howard Lateral @ Hwy 140	535XHLAHO	37.30790	-120.78200
15	2	Represented	Lateral 2 1/2 near Keyes Rd	535LTHNKR	37.54780	-121.09274
16	2	Represented	Lateral 5 1/2 @ South Blaker Rd	535LFHASB	37.45823	-120.96726
17	2	Represented	Lateral 6 and 7 @ Central Ave	535LSSACA	37.39779	-120.95971
18	2	Represented	Levee Drain @ Carpenter Rd	535XLDACR	37.47903	-121.03012
19	4	Represented	Livingston Drain @ Robin Ave	535XLDARA	37.31690	-120.74230
20	2	Represented	Lower Stevinson @ Faith Home Rd	535LSAFHR	37.37238	-120.92318
21	4	Represented	McCoy Lateral @ Hwy 140	535XMLAHO	37.30945	-120.78759
22	5	Represented	Miles Creek @ Reilly Rd	535XMCARR	37.25820	-120.47550
35	1	Represented	Mootz Drain Downstream of Langworth Pond	535XMDDLDP	37.70551	-120.89438
24	3	Represented	Mustang Creek @ East Ave	535XMCAEA	37.49180	-120.68390
26	1	Represented	Rodden Creek @ Rodden Rd	535XRCARD	37.79042	-120.80790
30	2	Represented	Unnamed Drain @ Hogin Rd	535XUDAHR	37.43129	-120.99380

Table 1. Third-party Core and Monitored Represented* Sites By Zone

ID	Zone	Site Type	Site Name	Station Code	Latitude	Longitude
31	4	Represented	Unnamed Drain @ Hwy 140	535XUDAHO	37.31331	-120.89217
33	2	Represented	Westport Drain @ Vivian Rd	535WDAVR	37.53682	-121.04861

*Monitored Represented sites in the table are not an exhaustive list; the Executive Officer may require the third-party to add monitoring sites for represented water bodies as necessary to meet the requirements of the Order.

C. Monitoring Requirements and Schedule

1. Surface Water Monitoring

Surface water monitoring must provide sufficient data to describe irrigated agriculture’s impacts on surface water quality and to determine whether existing or newly implemented management practices comply with the receiving water limitations of the Order. Surface water monitoring shall include a comprehensive suite of constituents (also referred to as “parameters”) monitored periodically in a manner that allows for an evaluation of the condition of a water body and determination of whether irrigated agriculture operations in the Eastern San Joaquin Watershed are causing or contributing to any surface water quality problems.

Surface water assessment monitoring shall be conducted at Core sites and shall consist of the general water quality parameters, nutrients, pathogen indicators, water column and sediment toxicity, pesticides, and metals identified in section III.C.3. By 1 August of the calendar year in which monitoring begins the third-party shall identify a specific set of monitoring parameters (Monitoring Plan Update) for each site that is scheduled to be monitored (see section III.C.3 below).⁷ The third-party shall continue monitoring as described in the Coalition’s 25 August 2008 Monitoring and Reporting Program Plan (2008 MRPP) until the Executive Officer has approved the Monitoring Plan Update. If there are no proposed or required changes to the previous Monitoring Program Plan or Monitoring Plan Update, the third-party is not required to submit the Monitoring Plan Update.

Follow-up sampling: The Central Valley Water Board Executive Officer may request that a parameter(s) of concern continue to be monitored at a specific Core or Represented site during non-scheduled years. Parameters of concern may include, but are not limited to, parameters that exceed an applicable water quality objective or water quality trigger (see section VIII).

Sampling events shall be scheduled to capture at least two storm runoff events per year, except where a different frequency has been required or approved by the Executive Officer. The third-party shall identify storm runoff monitoring criteria that are based on precipitation levels and knowledge of soils or other factors affecting when storm runoff is expected to occur at monitoring sites. The collection of storm runoff samples shall not be contingent upon the timing of other sampling events and could result in monitoring more than once during a month.

2. Monitoring Schedule and Frequency

The third-party shall identify the appropriate monitoring periods (e.g., months, seasons) for all parameters that require testing (Table 2), including a discussion of the rationale to support the proposed schedule.

For metals, pesticides, and aquatic toxicity, the monitoring periods shall be determined utilizing previous monitoring results, knowledge of agricultural use patterns (if applicable), pesticide use trends, chemical characteristics, and other applicable criteria. All other required parameters shall

⁷ A monitoring year is defined according to water year, which is 1 October through 30 September.

be monitored according to an approved schedule and frequency during the years in which monitoring is conducted at the Core and Represented sites.

Monitoring must be conducted when the pollutant is most likely to be present. If there is a temporal or seasonal component to the beneficial use, monitoring must also be conducted when beneficial use impacts could occur. The frequency of data collection must be sufficient to allow determination of compliance with the relevant numeric water quality objective(s) or water quality triggers. The third-party may submit written requests for the removal or addition of monitoring sites or parameters, or to modify the monitoring schedule and frequency, for approval by the Executive Officer.

3. Monitoring Parameters

Water quality and flow monitoring shall be used to assess the wastes in discharges from irrigated lands to surface waters and to evaluate the effectiveness of management practice implementation. Water quality is evaluated with both field-measured parameters and laboratory analytical data as listed on Table 2 of this MRP. The pesticides identified as “to be determined” (TBD) on Table 2 shall be identified as part of a process that includes input from qualified scientists and coordination with the Department of Pesticide Regulation. Based on this process, the Executive Officer will provide the third-party with a list of pesticides that require monitoring in areas where they are applied and have the potential to impair water quality.

Parameters that are part of an adopted TMDL that is in effect and for which irrigated agriculture is a source within the Eastern San Joaquin River Watershed shall be monitored in accordance with the adopted Basin Plan provisions or as directed by the Executive Officer. Current adopted TMDLs within the Eastern San Joaquin River Watershed for which irrigated agriculture is a source include the San Joaquin River Deep Water Ship Channel dissolved oxygen; San Joaquin River salt, boron, selenium, diazinon, and chlorpyrifos.

The metals to be monitored at sites within each site subwatershed shall be determined through an evaluation of several factors. The evaluation will provide the basis for including or excluding each metal. Evaluation factors shall include, but not be limited to: documented use of the metal applied to lands for irrigated agricultural purposes in the last three years; prior monitoring results; geological or hydrological conditions; and mobilization or concentration by irrigated agricultural operations. The third-party may also consider other factors such as acute and chronic toxicity thresholds and chemical characteristics of the metals. The third-party shall evaluate the monitoring parameters listed in Table 2 to determine which metals warrant monitoring for each site subwatershed. Documentation of the evaluations must be provided to the Central Valley Water Board as part of the Monitoring Plan Update.

The third-party shall identify in the Monitoring Plan Update all parameters to be monitored and the proposed monitoring periods and frequency at selected sites by 1 August of the year in which monitoring begins (monitoring period begins 1 October). If there are no changes from the previous Executive Officer approved monitoring (i.e., approved MRPP, or previously approved Monitoring Plan Update), the third-party is not required to submit the Monitoring Plan Update. The Monitoring Plan Update shall be subject to Executive Officer review and approval prior to the initiation of changes in monitoring activities.

Table 2: Monitoring Parameters

	Measured Parameter	Matrix	Required
Field Measurements	Estimated Flow (cfs)	Water	x
	Photo Documentation	Site	x

Table 2: Monitoring Parameters

	Measured Parameter	Matrix	Required
	Conductivity (at 25 °C) (µs/cm)	Water	x
	Temperature (°C)	Water	x
	pH	Water	x
	Dissolved Oxygen (mg/L)	Water	x
Drinking Water	<i>E. coli</i>	Water	x
	Total Organic Carbon (TOC)	Water	x
Gen Phys	Hardness (as CaCO ₃)	Water	TBD
	Total Suspended Solids (TSS)	Water	x
	Turbidity	Water	x
Metals	Arsenic (total)	Water	TBD
	Boron (total)	Water	TBD
	Cadmium (total and dissolved)**	Water	TBD
	Copper (total and dissolved)**	Water	TBD
	Lead (total and dissolved)**	Water	TBD
	Molybdenum (total)	Water	TBD
	Nickel (total and dissolved)**	Water	TBD
	Selenium (total)	Water	TBD
	Zinc (total and dissolved)**	Water	TBD
Nutrients	Total Ammonia (as N)	Water	x
	Unionized Ammonia (calc value)	Water	x
	Nitrogen, Nitrate+Nitrite	Water	x
	Soluble Orthophosphate	Water	x
Pesticides	Registered pesticides determined according to the process identified in section III.C.3.	Water	TBD
303(d)	TMDL constituents required by the Basin Plan		
	303(d) listed constituents to be monitored if irrigated agriculture is identified as a contributing source within the Eastern San Joaquin River Watershed and requested by the Executive Officer.	Water or Sediment	TBD
	<i>Ceriodaphnia dubia</i>	Water	x

Table 2: Monitoring Parameters

	Measured Parameter	Matrix	Required
Water Toxicity	<i>Pimephales promelas</i>	Water	x
	<i>Selenastrum capricornutum</i>	Water	x
	Toxicity Identification Evaluation	Water	see section III.C.4
Sediment Toxicity	<i>Hyalella azteca</i>	Sediment	x
Pesticides & Sediment Parameters	Bifenthrin	Sediment	As needed*
	Cyfluthrin	Sediment	As needed*
	Cypermethrin	Sediment	As needed*
	Deltamethrin	Sediment	As needed*
	Esfenvalerate/Fenvalerate	Sediment	As needed*
	Fenpropathrin	Sediment	As needed*
	Lambda cyhalothrin	Sediment	As needed*
	Permethrin	Sediment	As needed*
	Piperonyl butoxide (PBO)	Sediment	As needed*
	Chlorpyrifos	Sediment	As needed*
	Total Organic Carbon	Sediment	x
	Grain Size	Sediment	x

* For sediment samples measuring significant toxicity and < 80% organism survival compared to the control, the sediment pesticide analysis will be performed. Sediment pesticide analyses may be identified according to an evaluation of PUR data (see sediment toxicity testing requirements in section III.C.4 below).

** Hardness samples shall be collected when sampling for these metals.

4. Toxicity Testing

The purpose of toxicity testing is to: 1) evaluate compliance with the Basin Plan narrative toxicity water quality objective; 2) identify the causes of toxicity when and where it is observed (e.g. metals, pesticides, ammonia, etc.); and 3) evaluate any additive toxicity or synergistic effects due to the presence of multiple constituents.

a. Aquatic Toxicity

Aquatic toxicity testing shall include *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum* in the water column. Testing for *C. dubia* and *P. promelas* shall follow the USEPA acute toxicity testing methods.⁸ Testing for *S. capricornutum* shall follow the USEPA short-term chronic toxicity testing methods.⁹ Toxicity test endpoints are survival for *C. dubia* and *P. promelas*, and growth for *S. capricornutum*.

Water column toxicity analyses shall be conducted on 100% (undiluted) sample for the initial screening. A sufficient sample volume shall be collected in order to allow the laboratory to conduct a Phase I Toxicity Identification Evaluation (TIE) on the same sample, should toxicity be detected, in an effort to identify the cause of the toxicity.

⁸ USEPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. Office of Water, Washington, D.C. USEPA-821-R-02-012.

⁹ USEPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition. Office of Water, Washington, D.C. USEPA-821-R-02-013.

If a 50% or greater difference in *Ceriodaphnia dubia* or *Pimephales promelas* mortality in an ambient sample, as compared to the laboratory control, is detected at any time in an acceptable test, a TIE shall be initiated within 48 hours of such detection. If a 50% or greater reduction in *Selenastrum capricornutum* growth in an ambient sample, as compared to the laboratory control, is detected at the end of an acceptable test, a TIE shall be initiated within 48 hours of such detection.

At a minimum, Phase I TIE¹⁰ manipulations shall be conducted to determine the general class(es) (e.g., metals, non-polar organics, and polar organics) of the chemical(s) causing toxicity. The laboratory report of TIE results submitted to the Central Valley Water Board must include a detailed description of the specific TIE manipulations that were utilized.

If within the first 96 hours of the initial toxicity screening, the mortality reaches 100%, a multiple dilution test shall be initiated. The dilution series must be initiated within 24 hours of the sample reaching 100% mortality, and must include a minimum of five (5) sample dilutions in order to quantify the magnitude of the toxic response. For the fathead minnow test, the laboratory must take the steps to procure test species within one working day, and the multiple dilution tests must be initiated the day fish are available.

Ceriodaphnia dubia and *Pimephales promelas* Media Renewal

Daily sample water renewals shall occur during all acute toxicity tests to minimize the effects of rapid pesticide losses from test waters. A feeding regime of 2 hours prior to test initiation and 2 hours prior to test renewal shall be applied. Test solution renewal must be 100% renewal for *Ceriodaphnia dubia* by transferring organisms by pipet into fresh solutions, as defined in the freshwater toxicity testing manual.

Selenastrum capricornutum Pre-Test Treatment

Algae toxicity testing shall not be preceded with treatment of the chelating agent EDTA. The purpose of omitting this agent is to ensure that metals used to control algae in the field are not removed from sample aliquots prior to analysis or during the initial screening.

b. Sediment Toxicity

Sediment toxicity analyses shall be conducted according to EPA Method 600/R-99/064. Sampling and analysis for sediment toxicity testing utilizing *Hyalella azteca* shall be conducted at each monitoring location established by the third-party for water quality monitoring, if appropriate sediment (i.e. silt, clay) is present at the site. If appropriate sediment is not present at the designated water quality monitoring site, an alternative site with appropriate sediment shall be designated for all sediment collection and toxicity testing events. Sediment samples shall be collected and analyzed for toxicity twice per year, with one sample collected between 15 August and 15 October, and one sample collected between 1 March and 30 April, during each year of monitoring. The *H. azteca* sediment toxicity test endpoint is survival. The Executive Officer may request different sediment sample collection timing and frequency under a SQMP.

All sediment samples must be analyzed for total organic carbon (TOC) and grain size. Analysis for TOC is necessary to evaluate the expected magnitude of toxicity to the test species. Note that sediment collected for grain size analysis shall not be frozen. If the sample is not toxic to the test species, the additional sample volume can be discarded.

Sediment samples that show significant toxicity to *Hyalella azteca* at the end of an acceptable test and that exhibit < 80% organism survival compared to the control will require pesticide

¹⁰ USEPA. 1991. Methods for Aquatic Toxicity Identification Evaluations. Phase I Toxicity Characterization Procedures. Office of Research and Development, Washington DC. 20460. EPA-600-6-91-003.

analysis of the same sample in an effort to determine the potential cause of toxicity. The third-party may use the previous three years of available PUR data to determine which of the parameters listed in Table 2 require testing in the sediment sample. Analysis at practical reporting limits of 1 ng/g on a dry weight basis for each pesticide is required to allow comparison to established lethal concentrations of these chemicals to the test species. This follow-up analysis must begin within five business days of when the toxicity criterion described above is exceeded. The third-party may also follow up with a sediment TIE when there is $\geq 50\%$ reduction in test organism survival as compared to the laboratory control. Sediment TIEs are an optional tool.

5. Special Project Monitoring

The Central Valley Water Board or Executive Officer may require the third-party to conduct local or site-specific monitoring where monitoring identifies a water quality problem (Special Project Monitoring). The studies shall be representative of the effects of changes in management practices for the parameters of concern. Once Special Project Monitoring is required, the third-party must submit a Special Project Monitoring proposal. The proposal must provide the justification for the proposed study design, specifically identifying how the study design will quantify irrigated agriculture's contribution to the water quality problem, identify sources, and evaluate management practice effectiveness. When such a study is required, the proposed study must include an evaluation of the feasibility of conducting commodity and management practice specific field studies for those commodities and irrigated agricultural practices that could be associated with the pollutants of concern. Special Project Monitoring studies will be designed to evaluate the effectiveness of practices used by multiple Members and will not be required of the third-party to evaluate compliance of an individual Member.

D. Surface Water Data Management Requirements

All surface water field and laboratory data must be uploaded into the Central Valley Regional Data Center (CV RDC) database and will be exported to the California Environmental Data Exchange Network (CEDEN) once data have been approved as CEDEN comparable. The third-party will input its data into a replica of the CV RDC database following CV RDC and CEDEN business and formatting rules.

The third-party shall utilize the most current version of the database and update associated lookup lists on a routine basis. The third-party shall ensure that the data loaded meet the formatting and business rules as detailed in the most current version of the document "Format and Business Rules for the CV RDC CEDEN Comparable Database."

The Central Valley Water Board has developed several tools to assist the third-party with processing and loading of its data. These tools, whether required or optional, will help the third-party to efficiently conduct data processing and loading and meet data management requirements.

CEDEN Comparable Field Sheets (Required)

The third-party shall use CEDEN comparable field sheets when entering data. An example CEDEN comparable field sheet can be found on the CV RDC webpage. This field sheet was designed to match the entry user interface within the CEDEN comparable database to allow for easier data entry of all sample collection information. Modified versions of the field sheet may be submitted to the Central Valley Water Board Executive Officer for approval.

Format Quick Guide (Optional Tool)

The Format Quick Guide is a guidance document for the formatting of data tailored specifically for the third-party. It contains a column by column guide for filling out the CV RDC data templates with

the applicable required codes. The Central Valley Water Board CV RDC will provide this document, and updates to it, upon request based on an approved monitoring plan and associated QAPP.

EDD Checklist (Optional Tool)

The electronic data deliverable (EDD) checklist provides for a structured method for reviewing data deliverables from data entry staff or laboratories prior to loading. An updated checklist will be made available on the CV RDC website.

Online Data Checker (Optional Tool)

An online data checker was developed to automate the checking of the datasets against the current format requirements and business rules associated with CEDEN comparable data. The data checker can be accessed on the CV RDC webpage. Please note that data submission will not be accepted through this tool; however, the checker can still be used to check data for errors.

Electronic Quality Assurance Program Plan (eQAPP) (Required)

The third-party shall use an eQAPP when collecting and analyzing monitoring data. The eQAPP is a spreadsheet document containing the quality control requirements for each analyte and method as detailed in the most current version of the third-party's approved QAPP. Each analyte, method, extraction, units, recovery limits, QA sample requirement, etc. is included in this document using the appropriate codes required for the CEDEN comparable database. The third-party shall use the document to format the reported data and conduct a quality control review prior to loading. Data that do not meet the project quality assurance acceptance requirements must be flagged accordingly and must include brief notes detailing the problem within the provided comments field. Included in this file are also the most recent CEDEN comparable station name and code list as well as the applicable project CEDEN codes for retrieving data from the CEDEN website once data arrive there.

IV. Groundwater Quality Monitoring and Management Practice Assessment, and Evaluation Requirements

The groundwater quality monitoring, assessment, and evaluation requirements in this MRP have been developed in consideration of the critical questions developed by the Groundwater Monitoring Advisory Workgroup (questions are presented in the Information Sheet, Attachment A). The third-party must collect sufficient data to describe irrigated agricultural impacts on groundwater quality and to determine whether existing or newly implemented management practices comply with the groundwater receiving water limitations of the Order.

The strategy for evaluating groundwater quality and protection consists of (1) Drinking Water Supply Well Monitoring, (2) Groundwater Assessment Report, (3) Management Practices Evaluation Program, and (4) Groundwater Quality Trend Monitoring Program.

1. Drinking Water Supply Well Monitoring is designed to identify human health impacts of nitrate contamination and notifying well users of any well contaminations of nitrate above the Maximum Contaminant Level (MCL) for drinking water wells located on agricultural property.
2. The Groundwater Quality Assessment Report (GAR) provides the foundational information necessary for design of the Management Practices Evaluation Program and the Groundwater Quality Trend Monitoring Program. The GAR also identifies the high vulnerability groundwater areas where a Groundwater Quality Management Plan must be developed and implemented.
3. The overall goal of the Management Practice Evaluation Program (MPEP) is to evaluate the effectiveness of management practices in limiting the discharge of waste from irrigated lands to groundwater under different conditions (e.g., soil type, depth to groundwater, irrigation practice, crop type, nutrient management practice).

4. The overall objectives of the Groundwater Quality Trend Monitoring Program are to determine current water quality conditions of groundwater relevant to irrigated agriculture and develop long-term groundwater quality information that can be used to evaluate the regional effects of irrigated agricultural practices.

Each of these elements has its own specific objectives (provided below), and the design of each will differ in accordance with the specific objectives to be reached. While it is anticipated that these programs will provide sufficient groundwater quality and management practice effectiveness data to evaluate whether management practices of irrigated agriculture are protective of groundwater quality, the Executive Officer may also, pursuant to Water Code section 13267, order Members to perform additional monitoring or evaluations, where violations of this Order are documented or the irrigated agricultural operation is found to be a significant threat to groundwater quality.

A. Drinking Water Supply Well Monitoring

After January 1, 2019, Members must initiate sampling of private drinking water supply wells located on their property, as described below. The requirements of this section will not take effect if, prior to January 1, 2019, the State Water Board determines that the legislature has established a comprehensive statewide program that assures that private drinking water wells will be routinely monitored for nitrate contamination and users of those wells will be notified of the results.

The purpose of Drinking Water Supply Well Monitoring is to identify drinking water supply wells that have nitrate concentrations exceeding the MCL and notify any well users of the potential for human health impact.

1. Members must conduct annual drinking water supply well sampling. Members may submit one or more annual drinking water supply well sampling results from one or more of the five prior years in lieu of one or more of the first three rounds of annual monitoring samples, provided sampling and testing for nitrates was completed using EPA approved methods and by an Environmental Laboratory Accreditation Program certified laboratory. If the nitrate concentration is below 8 mg/L nitrate+nitrite as N in three consecutive annual samples, Members may conduct sampling every five years going forward. An alternative sampling schedule based on trending data for the well may be required by the Executive Officer at any time. Sampling may cease if a drinking water well is taken out of service or no longer provides drinking water.
2. Groundwater samples must be collected using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.
3. Laboratory analyses for groundwater samples must be conducted by an Environmental Laboratory Accreditation Program State certified laboratory according to the U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: www.waterboards.ca.gov/elap.
4. All drinking water supply well monitoring data, including any existing data, are to be submitted electronically to the State Water Board's GeoTracker Database by the testing laboratory. The data submitted shall include the APN where the drinking water supply well is located.

5. If groundwater monitoring determines that water in any well that is used for or may be used for drinking water exceeds 10 mg/L of nitrate+nitrite as N, the Member must provide notice to the users within 10 days of learning of the exceedance and send a copy of the notice to the Central Valley Water Board. If the Member is not the owner of the irrigated lands, the Member may provide notice instead to the owner within 24 hours of learning of the exceedance, and the owner must provide notice to the users within nine days and send a copy of the notice to the Central Valley Water Board.
6. [Notice shall be given to users by providing them a copy of a Drinking Water Notification Template approved by the Executive Officer. The template shall be signed by the Member \(or landowner if Member is not owner\) certifying notice has been provided to the users. A copy of the signed template shall be sent to the Central Valley Water Board.](#)

B. Groundwater Quality Assessment Report

The purpose of the Groundwater Quality Assessment Report (GAR) is to provide the technical basis informing the scope and level of effort for implementation of the Order's groundwater monitoring and implementation provisions. Three (3) months after receiving an NOA from the Central Valley Water Board, the third-party will provide a proposed outline of the GAR to the Executive Officer that describes data sources and references that will be considered in developing the GAR.

1. *Objectives.* The main objectives of the GAR are to:
 - Provide an assessment of all available, applicable and relevant data and information to determine the high and low vulnerability areas where discharges from irrigated lands may result in groundwater quality degradation.
 - Establish priorities for implementation of monitoring and associated studies within high vulnerability areas.
 - Provide a basis for establishing workplans to assess groundwater quality trends.
 - Provide a basis for establishing workplans and priorities to evaluate the effectiveness of agricultural management practices to protect groundwater quality.
 - Provide a basis for establishing groundwater quality management plans in high vulnerability areas and priorities for implementation of those plans.
2. *GAR components.* The GAR shall include, at a minimum, the following data components:
 - Detailed land use information with emphasis on land uses associated with irrigated agricultural operations. The information shall identify the largest acreage commodity types in the third-party area, including the most prevalent commodities comprising up to at least 80% of the irrigated agricultural acreage in the third-party area.
 - Information regarding depth to groundwater, provided as a contour map(s).
 - Groundwater recharge information, including identification of areas contributing recharge to urban and rural communities where groundwater serves as a significant source of supply.
 - Soil survey information, including significant areas of high salinity, alkalinity and acidity.
 - Shallow groundwater constituent concentrations (potential constituents of concern include any material applied as part of the agricultural operation, including constituents in irrigation supply water [e.g., pesticides, fertilizers, soil amendments, etc.] that could impact beneficial uses or cause degradation).
 - Information on existing groundwater data collection and analysis efforts relevant to this Order (e.g., Department of Pesticide Regulation [DPR] United States Geological Survey [USGS] State Water Board Groundwater Ambient Monitoring and Assessment [GAMA], California Department of Public Health, local groundwater management plans, etc.). This groundwater data compilation and review shall include readily accessible information relative to the Order on existing monitoring well networks, individual well details, and monitored parameters. For

existing monitoring networks (or portions thereof) and/or relevant data sets, the third-party should assess the possibility of data sharing between the data-collecting entity, the third-party, and the Central Valley Water Board.

3. *GAR data review and analysis.* To develop the above data components, the GAR shall include review and use, where applicable, of relevant existing federal, state, county, and local databases and documents. The GAR shall include an evaluation of the above data components to:
 - Determine where known groundwater quality impacts exist for which irrigated agricultural operations are a potential contributor or where conditions make groundwater more vulnerable to impacts from irrigated agricultural activities.
 - Determine the merit and feasibility of incorporating existing groundwater data collection efforts, and their corresponding monitoring well systems for obtaining appropriate groundwater quality information to achieve the objectives of and support groundwater monitoring activities under this Order. This shall include specific findings and conclusions and provide the rationale for conclusions.
 - Prepare a ranking of high vulnerability areas to provide a basis for prioritization of workplan activities.
 - Discuss pertinent geologic and hydrogeologic information for the third-party area(s) and utilize GIS mapping applications, graphics, and tables, as appropriate, in order to clearly convey pertinent data, support data analysis, and show results.
4. *Groundwater vulnerability designations.* The GAR shall designate high/low vulnerability areas for groundwater in consideration of high and low vulnerability definitions provided in Attachment E of the Order. Vulnerability designations may be refined or updated periodically during the Monitoring Report process. The third-party must review and confirm or modify vulnerability designations every five (5) years after Executive Officer approval of the GAR. The vulnerability designations will be made by the third-party using a combination of physical properties (soil type, depth to groundwater, known agricultural impacts to beneficial uses, etc.) and management practices (irrigation method, crop type, nitrogen application and removal rates, etc.). The third-party shall provide the rationale for proposed vulnerability determinations. The Executive Officer will make the final determination regarding vulnerability designations.

If the GAR is not submitted to the board by the required deadline, the Executive Officer will designate default high/low vulnerability groundwater areas using such information as 1) those areas that have been identified by the State Water Board as Hydrogeologically Vulnerable Areas, 2) California Department of Pesticide Regulation groundwater protection areas, and 3) areas with exceedances of water quality objectives for which irrigated agriculture waste discharges may cause or contribute to the exceedance.

5. *Prioritization of high vulnerability groundwater areas.* The third-party may prioritize the areas designated as high vulnerability areas to comply with the requirements of this Order, including conducting monitoring programs and carrying out required studies. When establishing relative priorities for high vulnerability areas, the third-party may consider, but not be limited to, the following:
 - Identified exceedances of water quality objectives for which irrigated agriculture waste discharges are the cause, or a contributing source.
 - The proximity of the high vulnerability area to areas contributing recharge to urban and rural communities where groundwater serves as a significant source of supply.
 - Existing field or operational practices identified to be associated with irrigated agriculture waste discharges that are the cause, or a contributing source.

- The largest acreage commodity types comprising up to at least 80% of the irrigated agricultural acreage in the high vulnerability areas and the irrigation and fertilization practices employed by these commodities.
- Legacy or ambient conditions of the groundwater.
- Groundwater basins currently or proposed to be under review by CV-SALTS.
- Identified constituents of concern, e.g., relative toxicity, mobility.

Additional information such as models, studies, and information collected as part of this Order may also be considered in designating and prioritizing vulnerability areas for groundwater. Such data includes, but is not limited to, 1) those areas that have been identified by the State Water Board as Hydrogeologically Vulnerable Areas, 2) California Department of Pesticide Regulation groundwater protection areas, and 3) areas with exceedances of water quality objectives for which irrigated agriculture waste discharges may cause or contribute to the exceedance.

The Executive Officer will review and may approve or require changes to any third-party proposed high/low vulnerability areas and the proposed priority ranking. The vulnerability areas, or any changes thereto, shall not be effective until third-party receipt of written approval by the Executive Officer. An interested person may seek review by the Central Valley Water Board of the Executive Officer's decision on the designation of high and low vulnerability areas associated with approval of the Groundwater Quality Assessment Report.

C. Management Practice Evaluation Program

The Management Practice Evaluation Program (MPEP) shall initially focus on the determination of the crop-specific coefficients for conversion of yield to nitrogen removed and then on the determination of acceptable ranges for the multi-year A/R ratio target values by crop. Following the initial focus, the goal of the MPEP is to evaluate the effectiveness of irrigated agricultural practices¹¹ with regard to groundwater quality. A MPEP may prioritize the condition relevant in high vulnerability groundwater areas and must address the constituents of concern described in the GAR. This section provides the goals, objectives, and minimum reporting requirements for the MPEP. As specified in section IV.D of this MRP, the third-party is required to develop a workplan that will describe the methods that will be utilized to achieve the MPEP requirements.

1. Objectives. The objectives of the MPEP are to:

- Determine the crop-specific coefficients for conversion of a measured crop yield to nitrogen removed.
- Determine acceptable ranges for the multi-year A/R ratios by crop.
- Identify whether existing site-specific and/or commodity-specific management practices are protective of groundwater quality.
- Determine if newly implemented management practices are improving or may result in improving groundwater quality.
- Develop an estimate of the effect of Members' discharges of constituents of concern on groundwater quality.
- Utilize the results of evaluated management practices to improve the practices implemented on Member farms (not specifically evaluated, but having similar site conditions).

Given the wide range of management practices/commodities that are used within the third-party's boundaries, it is anticipated that the third-party will rank or prioritize its areas and

¹¹ In evaluating management practices, the third-party is expected to focus on those practices that are most relevant to the Members' groundwater quality protection efforts.

commodities, and present a phased approach to implement the MPEP. The Third Party may base such prioritization on high/low vulnerability distinctions.

2. *Implementation.* Since management practices evaluation may transcend watershed or third-party boundaries, this Order allows developing a MPEP on a watershed or regional basis that involves participants in other areas or third-party groups, provided the evaluation studies are conducted in a manner representative of areas to which it will be applied. The MPEP may be conducted in one of the following ways:

- By the third-party,
- by watershed or commodity groups within an area with known groundwater impacts or vulnerability, or
- by watershed or commodity groups that wish to determine the effects of regional or commodity driven management practices.

A master schedule describing the rank or priority for the investigation(s) to be examined under the MPEP shall be prepared and submitted to the Executive Officer as detailed in the Management Practices Evaluation Program Workplan section IV.D below.

3. *Report.* Reports of the MPEP must be submitted to the Executive Officer as part of the third-party's Monitoring Report or in a separate report due on the same date as the Monitoring Report. The report shall include all data¹² (including analytical reports) collected by each phase of the MPEP since the previous report was submitted. The report shall also contain a tabulated summary of data collected to date by the MPEP, including A/R and A-R data. The report shall summarize the activities conducted under the MPEP, and identify the number and location of installed monitoring wells relative to each other and other types of monitoring devices. Within each report, the third-party shall evaluate the data and make a determination whether groundwater is being impacted by activities at farms being monitored by the MPEP.

Each report shall also include an evaluation of whether the specific phase(s) of the Management Practices Evaluation Program is/are on schedule to provide the data needed to complete the Management Practices Evaluation Report (detailed below) by the required deadline. If the evaluation concludes that information needed to complete the Management Practices Evaluation Report may not be available by the required deadline, the report shall include measures that will be taken to bring the program back on schedule.

4. *Management Practices Evaluation Report.* No later than six (6) years after implementation of each phase of the MPEP, the third-party shall submit a Management Practices Evaluation Report (MPER) identifying management practices that are protective of groundwater quality for the range of conditions found at farms covered by that phase of the study. The identification of management practices for the range of conditions must be of sufficient specificity to allow Members of the third-party and staff of the Central Valley Water Board to identify which practices at monitored farms are appropriate for farms with the same or similar range of site conditions, and generally where such farms may be located within the third-party area (e.g., the summary report may need to include maps that identify the types of management practices that should be implemented in certain areas based on specified site conditions). The MPER must include an adequate technical justification for the conclusions that incorporates available data and reasonable interpretations of geologic and engineering principles to identify management practices protective of groundwater quality.

¹² The data need not be associated with a specific parcel or Member.

The report shall include an assessment of each management practice to determine which management practices are protective of groundwater quality. If monitoring concludes that management practices currently in use are not protective of groundwater quality based upon information contained in the MPER, and therefore are not confirmed to be sufficient to ensure compliance with the groundwater receiving water limitations of the Order, the third-party in conjunction with commodity groups and/or other experts (e.g., University of California Cooperative Extension, Natural Resources Conservation Service) shall propose and implement new/alternative management practices to be subsequently evaluated. Where applicable, existing GQMPs shall be updated by the third-party group to be consistent with the findings of the Management Practices Evaluation Report.

D. Groundwater Quality Trend Monitoring

This section provides the objectives and minimum sampling and reporting requirements for Groundwater Quality Trend Monitoring. As specified in section IV.E of this MRP, the third-party is required to develop a workplan that will describe the methods that will be utilized to achieve the trend monitoring requirements.

1. *Objectives.* The objectives of Groundwater Quality Trend Monitoring are (1) to determine current water quality conditions of groundwater relevant to irrigated agriculture, and (2) to develop long-term groundwater quality information that can be used to evaluate the regional effects (i.e., not site-specific effects) of irrigated agriculture and its practices.
2. *Implementation.* To reach the stated objectives for the Groundwater Quality Trend Monitoring program, the third-party shall develop a groundwater monitoring network that will (1) be implemented over both high and low vulnerability areas in the third-party area; and will (2) employ shallow wells, but not necessarily wells completed in the uppermost zone of first encountered groundwater. The use of existing wells is less costly than installing wells specifically designed for groundwater monitoring, while still yielding data which can be compared with historical and future data to evaluate long-term groundwater trends. The third-party may also consider using existing monitoring networks such as those used by AB 3030 and SB 1938 plans.

The third-party shall submit a proposed ~~Trend~~ Groundwater Trend Monitoring Workplan described in section IV.E below to the Central Valley Water Board. The proposed network shall consist of a sufficient number of wells to provide coverage in the third-party geographic area so that current water quality conditions of groundwater and composite regional effects of irrigated agriculture can be assessed according to the trend monitoring objectives. The rationale for the distribution of trend monitoring wells shall be included in the workplan.

3. *Reporting.* The results of trend monitoring are to be included in the third-party's Monitoring Report and shall include a map of the sampled wells, tabulation of the analytical data, and time concentration charts. Groundwater monitoring data are to be submitted electronically to the State Water Board's GeoTracker Database and to the Central Valley Water Board.

Following collection of sufficient data (sufficiency to be determined by the method of analysis proposed by the third-party) from each well, the third-party is to evaluate the data for trends. The methods to be used to evaluate trends shall be proposed by the third-party in the ~~Trend~~ Groundwater Trend Monitoring Workplan described in section IV.E below.

E. Management Practices Evaluation Workplan

The third-party, either solely or in conjunction with a Management Practices Evaluation Group (watershed or commodity based), shall prepare a Management Practices Evaluation Workplan. The workplan shall be submitted to the Executive Officer for review and approval. The workplan must identify a reasonable number of evaluation locations. It must also encompass the range of management practices used, the major agricultural commodities, and site conditions under which these commodities are grown. The workplan shall be designed to meet the objectives and minimum requirements described in section IV.B of this MRP.

1. *Workplan approach.* The workplan must include a scientifically sound approach to evaluating the effect of management practices on groundwater quality. The proposed approach may include:

- groundwater monitoring,
- tracking applied and removed nitrogen,
- modeling,
- vadose zone sampling, or
- other scientifically sound and technically justifiable methods for meeting the objectives of the Management Practices Evaluation Program.

Where available, shallow¹³ groundwater monitoring data should be collected to validate the conclusions regarding the effect on groundwater quality of the evaluated practices. Any shallow groundwater quality monitoring that is part of the workplan must be of first encountered groundwater. Monitoring of shallow first encountered groundwater more readily allows identification of changes in groundwater quality from activities on the surface at the earliest possible time.

2. *Groundwater quality monitoring –constituent selection.* Where groundwater quality monitoring is proposed, the Management Practices Evaluation Workplan must identify:

- the constituents to be assessed, and
- the frequency of the data collection (e.g., groundwater quality or vadose zone monitoring; soil sampling) for each constituent.

The proposed constituents shall be selected based upon the information collected from the GAR and must be sufficient to determine if the management practices being evaluated are protective of groundwater quality. At a minimum, the baseline constituents for any groundwater quality monitoring must include those parameters required under trend monitoring.

3. *Workplan implementation and analysis.* The proposed Management Practices Evaluation Workplan shall contain 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. The workplan must 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. This information is needed to demonstrate whether data collected will allow identification of management practices that are protective of water quality at Member farms, including represented farms (i.e., farms for which on-site evaluation of practices is not conducted).

¹³ Shallow groundwater in this context refers to groundwater located less than 10 feet below the soil surface, which will exhibit a rapid response to deep percolation (below the root zone) water and nitrate flows.

4. *Master workplan –prioritization.* If the third-party chooses to rank or prioritize areas/commodities 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.
5. *Installation of monitoring wells.* Upon approval of the Management Practices Evaluation Workplan, the third-party shall prepare and submit a Monitoring Well Installation and Sampling Plan (MWISP), if applicable. A description of the MWISP and its required elements/submittals are presented as Appendix MRP-2. The MWISP must be approved by the Executive Officer prior to the installation of the MWISP's associated monitoring wells.

F. Trend Monitoring Workplan

The third-party shall develop a workplan for conducting trend monitoring within its boundaries that meets the objectives and minimum requirements described in section IV.C of this MRP. The workplan shall be submitted to the Executive Officer for review and approval. The Trend Monitoring Workplan shall provide information/details regarding the following topics:

1. *Workplan approach.* The Trend Monitoring workplan must include a discussion of the rationale for the number of proposed wells to be monitored and their locations. The rationale needs to consider: (1) the variety of agricultural commodities produced within the third-party's boundaries (particularly those commodities comprising the most irrigated agricultural acreage), (2) the conditions discussed/identified in the GAR related to the vulnerability prioritization within the third-party area, and (3) the areas identified in the GAR as contributing significant recharge to urban and rural communities where groundwater serves as a significant source of supply.
2. *Well details.* Details for wells proposed for trend monitoring, including:
 - i. GPS coordinates;
 - ii. Physical address of the property on which the well is situated (if available);
 - iii. California State well number (if known);
 - iv. Well depth;
 - v. Top and bottom perforation depths;
 - vi. A copy of the water well drillers log, if available;
 - vii. Depth of standing water (static water level), if available (this may be obtained after implementing the program); and
 - viii. Well seal information (type of material, length of seal).
3. *Proposed sampling schedule.* Trend monitoring wells will be sampled, at a minimum, annually at the same time of the year for the indicator parameters identified in Table 3 below.
4. *Workplan implementation and analysis.* Proposed method(s) to be used to evaluate trends in the groundwater monitoring data over time.

Table 3: Trend Monitoring Constituents

Annual Monitoring Conductivity (at 25 °C)* (µmhos/cm) pH* in pH units Dissolved oxygen (DO)* (mg/L) Temperature* (°C) Nitrate as nitrogen (mg/L)
* field parameters
Trend monitoring wells are also to be sampled initially and once every five years thereafter for the following COCs: Total dissolved solids (TDS) (mg/L) General minerals (mg/L): Anions (carbonate, bicarbonate, chloride, and sulfate) Cations (boron, calcium, sodium, magnesium, and potassium)

V. Third-Party Reporting Requirements

Reports and notices shall be submitted in accordance with section IX of the Order, Reporting Provisions.

The Third-Party shall develop Anonymous Member IDs and Anonymous APN IDs, as defined in Attachment E, for the reporting of data under Section C and D below.

A. Quarterly Submittals of Surface Water Monitoring Results

Each quarter, the third-party shall submit the previous quarter’s surface water monitoring results in an electronic format. The deadlines for these submittals are listed in Table 4 below.

Table 4. Quarterly Surface Water Monitoring Data Reporting Schedule

Due Date	Type	Reporting Period
1 March	Quarterly Monitoring Data Report	1 July through 30 September of previous calendar year
1 June	Quarterly Monitoring Data Report	1 October through 31 December of previous calendar year
1 September	Quarterly Monitoring Data Report	1 January through 31 March of same calendar year
1 December	Quarterly Monitoring Data Report	1 April through 30 June of same calendar year

Exceptions to due dates for submittal of electronic data may be granted by the Executive Officer if good cause is shown. The Quarterly Surface Water Monitoring Data Report shall include the following for the required reporting period:

1. An Excel workbook containing an export of all data records uploaded and/or entered into the CEDEN comparable database (surface water data). The workbook shall contain, at a minimum, those items detailed in the most recent version of the third-party’s approved QAPP.
2. The most current version of the third-party’s eQAPP.
3. Electronic copies of all field sheets.

4. Electronic copies of photos obtained from all surface water monitoring sites, clearly labeled with the CEDEN comparable station code and date.
5. Electronic copies of all applicable laboratory analytical reports on a CD.
6. For toxicity reports, all laboratory raw data must be included in the analytical report (including data for failed tests), as well as copies of all original bench sheets showing the results of individual replicates, such that all calculations and statistics can be reconstructed. The toxicity analyses data submittals must include individual sample results, negative control summary results, and replicate results. The minimum in-test water quality measurements reported must include the minimum and maximum measured values for specific conductivity, pH, ammonia, temperature, and dissolved oxygen.
7. For chemistry data, analytical reports must include, at a minimum, the following:
 - a. A lab narrative describing QC failures,
 - b. Analytical problems and anomalous occurrences,
 - c. Chain of custody (COCs) and sample receipt documentation,
 - d. All sample results for contract and subcontract laboratories with units, RLs and MDLs,
 - e. Sample preparation, extraction and analysis dates, and
 - f. Results for all QC samples including all field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, and surrogate recoveries.

Laboratory raw data such as chromatograms, spectra, summaries of initial and continuing calibrations, sample injection or sequence logs, prep sheets, etc., are not required for submittal, but must be retained by the laboratory in accordance with the requirements of section X of the Order, Record-keeping Requirements.

If any data are missing from the quarterly report, the submittal must include a description of what data are missing and when they will be submitted to the Central Valley Water Board. If data are not loaded into the CEDEN comparable database, this shall also be noted with the submittal.

B. Annual Groundwater Monitoring Results

Annually, by 1 May, the third-party shall submit the prior year's groundwater monitoring results as an Excel workbook containing an export of all data records uploaded and/or entered into the State Water Board GeoTracker database. If any data are missing from the report, the submittal must include a description of what data are missing and when they will be submitted to the Central Valley Water Board. If data are not loaded into the GeoTracker database, this shall also be noted with the submittal.

C. Annual Management Practice Implementation Data

By 1 July ~~2019-2020~~ and annually thereafter, the third-party shall submit to the Central Valley Water Board management practice implementation data from the prior year's INMP Summary Reports and MPIRs in Excel workbook format. [By 1 July 2019, the third-party shall submit to the Central Valley Water Board management practice implementation data from the prior year's NMP Summary Reports.](#) By 1 July 2019, and annually thereafter, the third-party shall also submit management practice implementation data from the most recently submitted Farm Evaluations. If any data are missing from the report, the submittal must include a description of what data are missing and when they will be submitted to the Central Valley Water Board. The third-party shall maintain an original electronic copy of all Farm Evaluations, INMP Summary Reports, and MPIRs, for ten years as required in Section X of the order.

The following data shall be reported to the Central Valley Water Board for each field:

1. Anonymous Member ID

December 2012 – Revised October 2013, March 2014, April 2015 and [Month Year]

2. Crop: If the Member has more than one field of a given crop, these may be identified by crop plus a number (e.g. tomato₁, tomato₂).

Data from the INMP Summary Report:

3. Whether Member was notified that Member was an outlier for AR data
4. INMP certification method
5. Irrigation method
6. Irrigation practices
7. Nitrogen management practices

Data from MPIR:

8. Whether the field is in a SQMP area
9. If so, management practices implemented consistent with the SQMP
10. Whether the field is in a GQMP area
11. If so, management practices implemented consistent with the GQMP

Data from Farm Evaluation:

12. Pest management practices
13. Sediment and erosion management practices
14. Whether there are irrigation wells
15. Whether there are abandoned wells

D. Annual Irrigation and Nitrogen Management Plan Summary Report Data

The third-party shall submit certain data from the prior year's Irrigation and Nitrogen Management Plan (INMP) Summary Reports and certain additional calculations in three tables in Excel workbook format. If any INMP Summary Reports or data are missing, the submittal must include a description of what data are missing and when they will be submitted to the Central Valley Water Board.

The third-party shall submit the Individual Field AR Data by Anonymous Member ID Table beginning 1 July 2019, and annually thereafter.

The third-party shall submit Individual Field AR Data by Anonymous APN ID Table beginning 1 July 2021 and annually thereafter.

The third-party shall submit Township AR Data Table beginning 1 July 2019 and annually thereafter.

The third-party shall maintain all INMP Summary Reports received by the third-party and maintain all electronic database tables created from the INMP Summary Reports for a minimum of 10 years as required by section X of the order.

Concurrently with the data submission, the third-party shall identify the entries in the first two tables below that the third-party considers outliers for AR data, subject to follow up actions, and the standard used to make that determination.

The third-party shall calculate the following values and convert them to per acre values as indicated:

Total Nitrogen Removed

The total nitrogen removed shall be calculated from the total amount of material removed (harvested/sequestered) and multiplied by a crop-specific coefficient, C_N . The third-party shall determine, through literature review, nitrogen removed testing, and research, the most appropriate C_N coefficients for converting crop yield to nitrogen removed. The third-party shall publish C_N coefficients for crops that cover 95% of acreage within the third-party's boundaries in time to calculate Total Nitrogen Removed values based on yield values reported in the INMP Summary Reports due 1 March 2021. By 1 March 2023, the third-party shall publish C_N coefficients for crops that cover 99% of acreage within the third-party's boundaries. For the crops that cover the remaining 1% of acreage within the third-party's boundaries, it is acceptable to use estimated C_N coefficients based on similar crop types. The methods used to establish C_N coefficients must be approved by the Executive Officer. Until C_N coefficients have been established for a particular crop, the member will only report the crop yield in the INMP. Nitrogen Removed includes nitrogen removal via harvest and nitrogen sequestered in permanent wood of perennial crops.

Nitrogen Applied/Nitrogen Removed Ratio (A/R Ratio)

The A/R ratio shall be reported as the ratio of total nitrogen applied to total nitrogen removed (calculated above).

Multi-Year Applied/Nitrogen Removed Ratio (A/R Ratio)

For each field for which three consecutive years of A/R ratio is available, the multi-year A/R ratio shall be reported as the ratio of total nitrogen applied to total nitrogen removed (calculated above) for the three prior consecutive years.

Nitrogen Applied – Nitrogen Removed Difference (A-R Difference)

The A-R difference shall be reported as the numerical difference between total nitrogen applied and total nitrogen removed (calculated above).

The third-party shall review each Members' [NMP and INMP](#) Summary Reports and independently calculate and report both the A/R ratio and the A-R difference for the current reporting cycle ($A/R_{1 \text{ year}}$ and $A-R_{1 \text{ year}}$). Beginning the third year of reporting, for those locations with data available for three years, the third-party shall calculate and report a three-year running total for both the A/R ratio and the A-R difference ($A/R_{3 \text{ year}}$ and $A-R_{3 \text{ year}}$). The formulas for the A/R ratios and A-R differences are shown in the equations below.

$$A/R_{1 \text{ year}} \text{ Ratio} = \frac{\text{Nitrogen Applied during current reporting cycle}}{\text{Nitrogen Removed during current reporting cycle}}$$

$$A/R_{3 \text{ year}} \text{ Ratio} = \frac{\text{Sum of Nitrogen Applied during current and two previous reporting cycles}}{\text{Sum of Nitrogen Removed during current and two previous reporting cycles}} = \frac{(A_n + A_{n-1} + A_{n-2})}{(R_n + R_{n-1} + R_{n-2})}$$

$$A-R_{1 \text{ year}} \text{ Difference} = \text{Nitrogen Applied (current reporting cycle)} - \text{Nitrogen Removed (current reporting cycle)}$$

$$\begin{aligned} A-R_{3 \text{ year}} \text{ Difference} &= [\text{Sum of Nitrogen Applied (current and two previous reporting cycles)}] \\ &\quad - [\text{Sum of Nitrogen Removed (current and two previous reporting cycles)}] \\ &= (A_n + A_{n-1} + A_{n-2}) - (R_n + R_{n-1} + R_{n-2}) \end{aligned}$$

Where n = current reporting cycle

The following data shall be reported to the Central Valley Water Board in three tables:

December 2012 – Revised October 2013, March 2014, April 2015 and [Month Year]

Individual Field-Level AR Data by Anonymous Member ID Table: One entry is made for each field or management unit reported.

1. Anonymous Member ID: Each Anonymous Member ID may be associated with more than one field.
2. Crop: If the Member has more than one field of a given crop, these may be identified by crop plus a number (e.g. tomato₁, tomato₂).
3. Nitrogen applied via fertilizers (lbs/acre)
4. Nitrogen applied via organics and compost (lbs/acre)
5. Nitrogen applied via irrigation water (lbs/acre)
6. Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer (3), organics/compost (4), and irrigation water (5)]
7. Nitrogen removed per acre (lbs/acre)
8. A/R ratio
9. A-R difference (lbs/acre)
10. 3 year A/R ratio if available

Individual Field-Level AR Data by Anonymous APN ID Table: An entry for a field or management unit may be repeated if there is more than one Anonymous APN ID associated with the field or management unit.-

1. -Anonymous APN ID: List on a separate line each Anonymous APN ID assigned to parcels the field overlays completely or partially.
2. Crop: If there is more one field of a given crop in the APN, these may be identified by crop plus a number (e.g. tomato₁, tomato₂)
3. Nitrogen applied via fertilizers (lbs/acre)
4. Nitrogen applied via organics and compost (lbs/acre)
5. Nitrogen applied -via irrigation water (lbs/acre)
6. Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer (3), organics/compost (4), and irrigation water (5)]
7. Nitrogen removed per acre (lbs/acre)
8. A/R ratio
9. A-R difference (lbs/acre)
10. 3 year A/R ratio if available

Township-Level Aggregated AR Data Table:

1. Township and range
2. Crop
3. Total acreage: sum for all the acreage for each unique crop within the township (acres)
4. Total nitrogen applied via fertilizer: sum for all acreage for each unique crop (total lbs)
5. Total nitrogen applied via organics and compost: sum for compost for each unique crop (total lbs)
6. Total nitrogen applied via irrigation water: sum for all acreage for each unique crop (total lbs)
7. Total nitrogen applied for each unique crop (total lbs) [sum of nitrogen from fertilizer (3), organics/compost (4), and irrigation water (5)]
8. Total nitrogen removed for each unique crop (total lbs)
9. A/R ratio for each unique crop
10. A-R difference for each unique crop (total lbs)

E. Monitoring Report

The Monitoring Report shall be submitted by 1 May every year, with the first report due 1 May 2014, except for report components 17 and 18 which will be due 1 July of each year. The report shall cover the monitoring periods from the previous hydrologic water year. A hydrologic water year is defined as 1 October through 30 September. The report shall include the following components:

1. Signed transmittal letter;
2. Title page;
3. Table of contents;
4. Executive summary;
5. Description of the third-party geographical area;
6. Monitoring objectives and design;
7. Sampling site/monitoring well descriptions and rainfall records for the time period covered under the Monitoring Report;
8. Location map(s) of sampling sites/monitoring wells, crops and land uses;
9. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
10. Discussion of data relative to water quality objectives, and water quality management plan milestones, where applicable;
11. Sampling and analytical methods used;
12. Summary of Quality Assurance Evaluation results (as identified in the most recent version of the third-party's approved QAPP for Precision, Accuracy and Completeness);
13. Specification of the method(s) used to obtain estimated flow at each surface water monitoring site during each monitoring event;
14. Summary of exceedances of water quality objectives/trigger limits occurring during the reporting period and for surface water related pesticide use information;
15. Actions taken to address water quality exceedances that have occurred, including but not limited to, revised or additional management practices implemented;
16. Evaluation of monitoring data to identify spatial trends and patterns;
17. INMP Summary Report Evaluation;
18. Summary of management practice information collected as part of Farm Evaluations;
19. Summary of mitigation monitoring;
20. Summary of education and outreach activities;
21. Conclusions and recommendations.

Additional requirements and clarifications necessary for the above report components are described below.

Report Component (1) —Signed Transmittal Letter

A transmittal letter shall accompany each report. The transmittal letter shall be submitted and signed in accordance with the requirements of section IX of the Order, Reporting Provisions.

Report Component (8) — Location Maps

Location map(s) showing the sampling sites/monitoring wells, crops, and land uses within the third-party's geographic area must be updated (based on available sources of information) and included in the Monitoring Report. An accompanying GIS shapefile or geodatabase of monitoring site and monitoring well information must include the CEDEN comparable site code and name (surface water only) and Global Positioning System (GPS) coordinates (surface water sites and wells used for monitoring). The map(s) must contain a level of detail that ensures they are informative and useful. GPS coordinates must be provided as latitude and longitude in the decimal degree coordinate system (at a minimum of five decimal places). The datum must be either WGS 1984 or

NAD83, and clearly identified on the map. The source and date of all data layers must be identified on the map(s). All data layers/shapefiles/geodatabases included in the map shall be submitted with the Monitoring Report.

Report Component (9) – Tabulated Results

In reporting monitoring data, the third-party shall arrange the data in tabular form so that the required information is readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with the data collection requirements of the MRP.

Report Component (10) — Data Discussion to Illustrate Compliance

The report shall include a discussion of the third-party's compliance with the data collection requirements of the MRP. If a required component was not met, an explanation for the missing data must be included. Results must also be compared to water quality objectives and trigger limits.

Report Component (12) — Quality Assurance Evaluation (Precision, Accuracy and Completeness)

A summary of precision and accuracy results (both laboratory and field) is required in the report. The required data quality objectives are identified in the most recent version of the third-party's approved QAPP; acceptance criteria for all measurements of precision and accuracy must be identified. The third-party must review all QA/QC results to verify that protocols were followed and identify any results that did not meet acceptance criteria. A summary table or narrative description of all QA/QC results that did not meet objectives must be included. Additionally, the report must include a discussion of how the failed QA/QC results affect the validity of the reported data. The corrective actions to be implemented are described in the QAPP Guidelines.

In addition to precision and accuracy, the third-party must also calculate and report completeness. Completeness includes the percentage of all quality control results that meet acceptance criteria, as well as a determination of project completeness. For further explanation of this requirement, refer to the most recent version of the QAPP Guidelines. The third-party may ask the laboratory to provide assistance with evaluation of their QA/QC data, provided that the third-party prepares the summary table or narrative description of the results for the Monitoring Report.

Report Component (14) — Summary of Exceedances

A summary of the exceedances of water quality objectives or triggers that have occurred during the monitoring period is required in the Monitoring Report. In the event of exceedances for pesticides or toxicity in surface water, pesticide use data must be included in the Monitoring Report. Pesticide use information may be acquired from the agricultural commissioner. This requirement is described further in the following section on Exceedance Reports.

Report Component (16) — Evaluation of Monitoring Data

The third-party must evaluate its monitoring data in the Monitoring Report in order to identify potential trends and patterns in surface and groundwater quality that may be associated with waste discharge from irrigated lands. As part of this evaluation, the third-party must analyze all readily available monitoring data that meet program quality assurance requirements to determine deficiencies in monitoring for discharges from irrigated agricultural lands and whether additional sampling locations are needed. If deficiencies are identified, the third-party must propose a schedule for additional monitoring or source studies. Upon notification from the Executive Officer, the third-party must monitor any parameter in a watershed that lacks sufficient monitoring data (i.e., a data gap should be filled to assess irrigated agriculture's effects on water quality).

The third-party should incorporate pesticide use information, as needed, to assist in its data evaluation. Wherever possible, the third-party should utilize tables or graphs that illustrate and summarize the data evaluation.

Report Component (17) – INMP Summary Report Evaluation

In addition to submitting the INMP Summary Reports Data, as described in Section V.D above, the third-party shall submit an evaluation comparing individual field data collected from the Members' INMP Summary Reports. These comparisons shall include the ratio of Nitrogen Applied to Nitrogen Removed¹⁴ and the difference between Nitrogen Applied and Nitrogen Removed for crops in the Eastern San Joaquin River Watershed. Nitrogen Applied includes nitrogen from any sources, including, but not limited to, organic amendments, synthetic fertilizers, and irrigation water.

The third-party's evaluation of both the $A/R_{1\text{ year}}$ and $A/R_{3\text{ year}}$ ratios must include, at a minimum, a comparison of A/R ratios by crop type. As directed by the Executive Officer, initial further evaluations within each crop type comparing the irrigation method, the soil conditions, and the farming operation size shall be developed. The third-party shall evaluate the corresponding $A-R_{1\text{ year}}$ and $A-R_{3\text{ year}}$ differences by crop type. The third-party shall also evaluate any other A/R ratio or A-R difference comparisons as directed by the Executive Officer. For each comparison, the third-party must identify the mean and the standard deviation as well as develop a histogram plot of the data. A box and whisker plot comparing the A/R ratio and A-R difference for each comparison, or equivalent tabular or graphical presentation of the data approved by the Executive Officer, may also be used. The summary of nitrogen management data must include a quality assessment of the collected information (e.g. missing data, potentially incorrect/inaccurate reporting), and a description of corrective actions to be taken regarding any deficiencies in the quality of data submitted, if such deficiencies were identified. Spreadsheets showing the calculations used for data evaluation must also be submitted to the Executive Officer. The third-party may include any recommendations regarding future A/R ratio target values.

Report Component (18) – Summary of Management Practice Information

The third-party will aggregate and summarize information collected from Farm Evaluations.¹⁵ The summary of management practice data must include a quality assessment of the collected information by township (e.g. missing data, potentially incorrect/inaccurate reporting), and a description of corrective actions to be taken regarding any deficiencies in the quality of data submitted, if such deficiencies were identified.

Report Component (19) – Mitigation Monitoring

As part of the Monitoring Report, the third-party shall report on the CEQA mitigation measures reported by Members to meet the provisions of the Order and any mitigation measures the third-party has implemented on behalf of Members. The third-party is not responsible for submitting information that Members do not send them directly by the 1 March deadline (see section VII.E of the Order for individual Discharger mitigation monitoring requirements). The Mitigation Monitoring Report shall include information on the implementation of CEQA mitigation measures (mitigation measures are described in Attachment C of the Order), including the measure implemented, identified potential impact the measure addressed, location of the mitigation measure (township, range, section), and any steps taken to monitor the ongoing success of the measure.

¹⁴ For some crops the information needed to determine nitrogen removed may not be readily available. This will be determined through N removed research and crop yield will serve as a placeholder until nitrogen removed data is made available.

¹⁵ Note that the evaluation of the reported management practices information is discussed in Appendix MRP-1 and will be part of the annual Management Plan Progress Report.

F. Surface Water Exceedance Reports

The third-party shall provide surface water exceedance reports if monitoring results show exceedances of adopted numeric water quality objectives or trigger limits, which are based on interpretations of narrative water quality objectives. For each surface water quality objective exceeded at a monitoring location, the third-party shall submit an Exceedance Report to the Central Valley Water Board. The estimated flow at the monitoring location and photographs of the site must be submitted in addition to the exceedance report but do not need to be submitted more than once. The third-party shall evaluate all of its monitoring data and determine exceedances no later than five (5) business days after receiving the laboratory analytical reports for an event. Upon determining an exceedance, the third-party shall send the Exceedance Report by email to the third-party's designated Central Valley Water Board staff contact by the next business day. The Exceedance Report shall describe the exceedance, the follow-up monitoring, and analysis or other actions the third-party may take to address the exceedance. Upon request, the third-party shall also notify the agricultural commissioner of the county in which the exceedance occurred and/or the director of the Department of Pesticide Regulation.

Surface water exceedances of pesticides or toxicity: When any pesticide or toxicity exceedance is identified at a location that is not under an approved management plan for toxicity or pesticides, follow-up actions must include an investigation of pesticide use within the location's watershed area. For toxicity exceedances, the investigation must include all pesticides applied within the area that drains to the monitoring site during the four weeks immediately prior to the exceedance date. The pesticide use information may be acquired from the agricultural commissioner, or from information received from Members within the same drainage area. Results of the pesticide use investigation must be summarized and discussed in the Monitoring Report.

VI. Templates – Third Party and Group Options

The Order provides the option for the third-party to develop templates as an alternative to templates provided by the Central Valley Water Board's Executive Officer. This section describes the minimum requirements that must be met prior to approval of those templates.

Prior to Executive Officer approval of any template, the Central Valley Water Board will post the draft template on its website for a review and comment period. Stakeholder comments will be considered by Central Valley Water Board staff. Based on information provided by the third-party and after consideration of comments provided by other interested stakeholders, the Central Valley Water Board's Executive Officer will either: (1) approve the template; (2) conditionally approve the template or (3) disapprove the template. Review of the template and the associated action by the Executive Officer will be based on findings as to whether the template meets applicable requirements and contains all of the information required.

A. Farm Evaluation Template

Should the third-party choose to develop a Farm Evaluation Template per the Third-Party or Group Option outlined in section VIII.C.1 of the Order, the following provisions apply.

The third-party must develop a template or web-based information system to gather Farm Evaluation information from Members for each parcel enrolled. The goal of the template is to gather information on general site conditions and Member management practices in place to protect water quality. At a minimum, the template must be designed to collect the following information.

- Identification of the crops grown and acreage of each crop.
- Location of the farm.
- [The number of drinking water supply wells associated with each enrolled APN.](#)

- Identification of on-farm management practices, with the exception of irrigation methods and irrigation management practices and nitrogen management practices (which are to be reported on the INMP Summary Report) implemented to achieve the Order's farm management performance standards. Specifically track which management practices recommended in management plans have been implemented at the farm. On-farm management practices should include pest management application practices and sediment and erosion control practices.
- Identification of whether or not there is movement of soil during storm events and/or during irrigation drainage events (sediment and erosion risk areas) and a description of where this occurs.
- Identification of whether or not water leaves the property and is conveyed downstream and a description of where this occurs.
- Identification of whether or not one or more of the fields managed by the Member are in an area requiring a SQMP or GQMP.
- Location of in-service wells and abandoned wells. Identification of whether wellhead protection and backflow prevention practices have been implemented.

As part of its submittal for approval, the third-party must identify the entities that participated in the development of any proposed Farm Evaluation Template.

B. Irrigation and Nitrogen Management Plan (INMP) and INMP Summary Report Templates

Should the third-party choose to develop a Nitrogen Management Plan Template per the Third-Party or Group Option outlined in section VIII.C.2 of the Order, the following provisions apply.

The third-party shall develop a template or web-based information system to gather Irrigation and Nitrogen Management Plan and Summary Report information from Members for each parcel enrolled. The goal of the template is to gather information needed to calculate the A/R ratio. At a minimum, the INMP template must be designed to collect the following information:

1. Crop year
2. Owner/Manager name
3. Whether Member was identified as an outlier for AR data in previous year
4. Irrigation management practices implemented
5. Nitrogen management practices implemented to minimize leaching past the root zone
6. Assessor Parcel Number (APN)
7. Field identification number
8. Acreage
9. Residual nitrogen in soil
10. Crop type
11. Crop production units
12. Crop age (permanent crops)
13. Total acreage
14. Irrigation method
15. Crop evapotranspiration

16. Anticipated crop irrigation
17. Irrigation water nitrogen concentration
18. Projected yield
19. Nitrogen recommended
20. Nitrogen applied in irrigation water
21. Applied synthetic fertilizers
22. Applied organic soil amendments (compost and manure)
23. Total nitrogen applied
24. Primary and secondary crop harvest yield
25. Plan certification information

The [Irrigation and](#) Nitrogen Management Plan template must be developed by the third-party in consultation with the Central Valley Water Board, and as appropriate, the California Department of Food and Agriculture (CDFA), the University of California Extension, and the Natural Resource Conservation Services (NRCS). In developing the template, the third-party should consider, to the extent appropriate, the major criteria established in Code 590 of the NRCS Nutrient Management document, including soil and plant tissue testing, nitrogen application rates, nitrogen application timing, consideration of organic nitrogen fertilizer, consideration of irrigation water nitrogen levels.

INMP Component (1) – Crop Year

The crop year shall be reported for the calendar year in which the crop is harvested.¹⁶

INMP Component (2) – Owner/Manager Name

The owner/manager name shall be reported as the name of the individual completing the INMP form. This may be the individual that owns or manages the farm, or the individual certifying the INMP.

INMP Component (3) – Outlier Status

Whether the Member was notified by the third-party that it was an outlier for AR data the prior year shall be indicated

INMP Component (4) – Irrigation Management Practices Implemented

Irrigation management practices implemented in the prior year shall be reported for each field/management unit

INMP Component (5) – Nitrogen Management Practices Implemented

Nitrogen management practices implemented in the prior year to minimize discharge of nitrogen past the root zone shall be reported for each field/management unit

INMP Component (6) – Assessor Parcel Number (APN)

The Assessor Parcel Number (APN) shall be reported for each field /management unit.

INMP Component (7) – Field Identification Number

¹⁶ Some crops such as winter cereal grains and some citrus should report information based on the calendar year that the crop is harvested, even if fertilization occurs in the previous calendar year; all nitrogen application information should be provided for the crop harvest year, which may or may not be the same calendar year.

The field identification number shall be reported for each field/management unit and corresponding APN.

INMP Component (8) – Acreage

The acreage shall be reported for each field identified by APN and field identification number.

INMP Component (9) – Residual Nitrogen in Soil

The residual nitrogen in soil shall be reported as nitrogen available to the crop during the growing season. This is estimated by analyzing soil samples.

INMP Component (10) – Crop Type

The crop type shall be reported as the name of the harvested crop (i.e. almonds, walnuts, table grapes, wine grapes, raisin grapes, canning tomatoes, fresh market tomatoes, etc.)

INMP Component (11) – Crop Production Units

The crop production units shall be reported as the standard production units for the reported crop (tons, pounds, bushels, bales, etc.).

INMP Component (12) – Crop Age (permanent crops)

The crop age shall be reported for any permanent crop, including orchards and vineyards, and measured in years.

INMP Component (13) – Total Acreage

The total acreage is the sum of the acreage for each field/management unit reported on the INMP.

INMP Component (14) – Irrigation Method

The irrigation method shall be reported as the method used for the most for crop irrigation during the growing season (drip, furrow, sprinkler, flood, etc.). A crop that germinates seeds using sprinklers before converting irrigation to drip would report drip irrigation as the irrigation method.

INMP Component (15) – Crop Evapotranspiration

The crop evapotranspiration shall be reported as the total crop-specific evapotranspiration for the reported crop during the applicable growing period. This may be estimated using reference evapotranspiration multiplied by an appropriate crop coefficient. Alternatively, the third-party may provide crop appropriate average evapotranspiration values for use by their members.

INMP Component (16) – Anticipated Crop Irrigation

The anticipated crop irrigation can be estimated using the crop evapotranspiration, subtracting the anticipated rainfall and adjusting accordingly for distribution uniformity and leaching requirement for salinity. A simplified way to adjust for these is to divide by 0.85 such that:

$$\text{Anticipated Crop Irrigation (in)} = \frac{ET_c - \text{rainfall}}{0.85}$$

INMP Component (17) – Irrigation Water Nitrogen Concentration

The irrigation water nitrogen concentration shall be reported as parts per million (ppm) of all available forms of nitrogen. The concentration is estimated by analyzing an irrigation water sample to determine the available nitrogen content.

INMP Component (18) – Projected Yield

The projected yield should be reported as the projected yield per acre for the field(s)/management unit(s) for the upcoming season. The projected yield expectations will guide nitrogen management decisions.

INMP Component (19) – Nitrogen Recommended

The nitrogen recommended shall be reported as the estimated amount of available nitrogen needed to meet the projected yield. Crop recommendations from CDFA, UCCE, NRCS, commodity groups, or site-specific knowledge based on previous experience are appropriate for estimating the amount of nitrogen needed.

INMP Component (20) – Nitrogen Applied in Irrigation Water

The nitrogen applied in irrigation water shall be reported, in pounds per acre, as the estimated amount of nitrogen applied via irrigation water application. This estimate may be based on the anticipated/actual crop irrigation and the irrigation water nitrogen concentration. This estimate should be reported as nitrogen available throughout the crop season based on the amount of irrigation water applied to the crop. For a crop with an irrigation water nitrate concentration in ppm (or mg/L) and a crop irrigation in inches, the multiplier to determine nitrogen applied in irrigation water is 0.052 lbs-N/acre-inch for nitrate measured as nitrate, and 0.226 lbs-N/acre-inch for nitrate measured as nitrogen. (e.g. A crop with 48 inches of applied water with a concentration of 5 ppm nitrate measured as nitrate would apply 5 ppm x 48 inches x 0.052 lbs-N/acre-inch, or 12.5 lbs-N/acre)

INMP Component (21) – Applied Synthetic Fertilizers

The applied synthetic fertilizers are categorized as dry fertilizer, liquid fertilizer, and foliar fertilizer and shall be reported as the amount of the nitrogen portion of all applied synthetic fertilizers in pounds per acre.

INMP Component (22) – Applied Organic Soil Amendments (Compost and Manure)

The applied organic soil amendments include compost and manure and should be reported as the amount of nitrogen available to the plant during the growing period in pounds per acre. Available nitrogen may be measured by testing the applied compost or manure materials or estimated using reference materials that are available for estimating nitrogen content. Caution should be exercised with land application of uncomposted materials, including uncomposted green waste, and other organic amendments containing a high carbon to nitrogen (C:N) ratio due to the potential for significant nitrogen sequestration. This sequestered nitrogen has the potential for bulk rapid release in a very short period of time. If the crop is not prepared to take up this rapid release, there is risk for nitrogen loss to the system.

INMP Component (23) – Total Nitrogen Applied

The total nitrogen applied shall be reported as the sum of the total nitrogen applied in irrigation water, synthetic fertilizers and organic soil amendments.

INMP Component (24) – Primary and Secondary Crop Harvest Yield

The crop harvest yield shall be reported for primary harvest and any secondary crop harvests. The harvest shall be reported in crop production units per acre (i.e. lbs/acre of almonds) and shall include all harvested materials removed from the field, including secondary harvests of rice straw or orchard prunings.

INMP Component (25) – Nitrogen Sequestered in Wood of Perennial Crops

The nitrogen sequestered in wood accounts for the storage of nitrogen in the woody growth of perennial crops such as almonds, peaches, pistachios, etc. The amount of nitrogen sequestered

may vary depending on the age of the crop. This sequestered nitrogen shall be included in the nitrogen removed component of the A/R ratio. The third-party shall determine, through testing and research, or the review of existing research, the most appropriate values for annual nitrogen sequestration for those perennial crops that cover 95% of the acreage in perennial crops for use in the INMP Summary Reports due 1 March 2019.

INMP Component (26) – Irrigation and Nitrogen Management Plan Certification Information

The INMP certification information shall include the name of the plan certifier, the date of plan certification, and certification method used. Appropriate certification methods include certification as an INMP specialist,¹⁷ self-certification via an approved training program, or self-certification by means of following site-specific recommendations provided by UCANR or NRCS.

The INMP certification shall include the following statement:

The person signing this Irrigation and Nitrogen Management Plan (INMP) certifies, under penalty of law, that the INMP was prepared under his/her direction and supervision, that the information and data reported is to the best of his/her knowledge and belief, true, accurate, and complete, and that he/she is aware that there are penalties for knowingly submitting false information. Where the person signing the INMP is not the Member,* he/she may rely on the information and data provided by the Member and is not required to independently verify the information and data.

The person signing the INMP below further certifies that he/she used sound irrigation and nitrogen management planning practices to develop irrigation and nitrogen application recommendations and that the recommendations are informed by applicable training for meeting the crop's agronomic needs while minimizing nitrogen loss to surface water and groundwater. Where the person signing the INMP is not the Member, he/she is not responsible for any damages, loss, or liability arising from subsequent implementation of the INMP by the Member in a manner that is inconsistent with the INMP's recommendations for nitrogen application. This certification does not create any liability for claims for environmental violations.

Certification:

I, _____, certify this INMP in accordance with the statement above.

_____ (Signature)

If the certifier is not the Member, the Member additionally agrees as follows:

I, _____, Member, have provided information and data to the certifier above that is, to the best of my knowledge and belief, true, accurate, and complete, that I understand that the certifier may rely on the information and data provided by me and is not required to independently verify the information and data, and that I further understand that the certifier is not responsible for any damages, loss, or liability arising from subsequent implementation of the INMP by me in a manner that is inconsistent with the INMP's recommendations for nitrogen application. I further understand that the certification does not create any liability for claims for environmental violations.

_____ (Signature)

¹⁷ Described in section VII.D of the Order.

*The Member is the owner or operator of irrigated lands within the Eastern San Joaquin River Watershed that is a member of the third-party group implementing this Order.

In addition to the Irrigation and Nitrogen Management Plan Template, the third-party must provide a template for the Irrigation and Nitrogen Management Plan Summary Report.

Select data from the INMP template will be used to complete the INMP Summary Report. Data collected from the INMP Summary Report will be reported annually to the third-party and the Central Valley Water Board. At a minimum, the INMP Summary Report template must collect the following information:

1. Crop Year
2. Owner/Manager name
3. Assessor Parcel Number (APN)
4. Field identifier
5. Acreage for each field identified
6. Acknowledgement of receipt of outlier notification
7. Crop type
8. Crop age (permanent crops)
9. Irrigation method
10. Irrigation management practices implemented
11. Nitrogen management practices implemented
12. Total Acreage
13. Nitrogen Applied (lbs/acre)
 - a. Irrigation Water
 - b. Synthetic Fertilizers
 - c. Organic Amendments
14. Crop Yield (units specified by third-party)
15. Certification method

As part of its submittal for approval, the third-party must identify the entities that participated in the development of the Irrigation and Nitrogen Management Plan Template.

C. Sediment and Erosion Control Plan Template

Should the third-party choose to develop the Sediment and Erosion Control Plan Template per the Group Option outlined in section VIII.C of the Order, the following provisions apply.

The third-party will create a template to assist Members that must prepare a Sediment and Erosion Control Plan. The goal of the template shall be to assist Members in achieving the farm management performance standards of the Order, which include the requirement to minimize or eliminate the discharge of sediment above background levels. At a minimum, the template must be designed to facilitate Member consideration of the following.

- Identification of locations subject to erosion or locations subject to frequent water flow events that may mobilize sediment (sediment and erosion risk areas). Locations to be evaluated include the fields, roads or stream crossings within the enrolled parcel, and discharge points from the field.
- Identification of practices implemented at sediment and erosion risk areas to minimize or eliminate the discharge of sediment above background levels.

As part of its submittal for approval, the third-party must identify the entities that participated in the development of the Sediment and Erosion Control Plan Template.

D. Drinking Water Notification Template

Should the third-party choose to develop a Drinking Water Notification Template per the Third-Party or Group Option outlined in section VIII.C.4 of the Order, the following provisions apply.

The third-party shall prepare a Drinking Water Notification Template, to be provided to Members who are conducting drinking water supply well monitoring. The template shall be submitted to the Executive Officer for review and final approval. The purpose of the template is to provide users of affected wells with information regarding the risks associated with drinking groundwater with high concentrations of nitrates and to document that the user has been notified. At a minimum, the template must be designed to contain the following information:

- A statement notifying users of the exceedance
- Material regarding the potential health risks associated with consuming nitrate contaminated drinking water
- A signature block, to be signed by the Member or landowner, certifying that a copy of the Drinking Water Notification Template has been provided to affected users

VII. Sediment Discharge and Erosion Assessment Report

The third-party shall prepare a Sediment Discharge and Erosion Assessment Report. The report shall be submitted to the Executive Officer for review. The goal of the report is to determine which irrigated agricultural areas within the Eastern San Joaquin River Watershed are subject to erosion and may discharge sediment that may degrade surface waters. The objective of the report is to determine which Member operations are within such areas, and need to develop a Sediment and Erosion Control Plan. The report must be developed to achieve the above goal and objective and must at a minimum, provide a description of the sediment and erosion areas as a series of ArcGIS shapefiles with a discussion of the methodologies utilized to develop the report.

VIII. Water Quality Triggers for Development of Management Plans

This Order requires that Members comply with all adopted water quality objectives and established federal water quality criteria applicable to their discharges. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) contains numeric and narrative water quality objectives applicable to surface water and groundwater within the Order's watershed area. USEPA's 1993 National Toxics Rule (NTR) and 2000 California Toxics Rule (CTR) contain water quality criteria which, when combined with Basin Plan beneficial use designations constitute numeric water quality standards. Table 5 of this MRP lists Basin Plan numeric water quality objectives and NTR/CTR criteria for constituents of concern that may be discharged by Members.

Table 5 does not include water quality criteria that may be used to interpret narrative water quality objectives, which shall be considered trigger limits. Trigger limits will be developed by the Central Valley Water Board staff through a process involving coordination with the Department of Pesticide

Regulation (for pesticides) and stakeholder input. The trigger limits will be designed to implement narrative Basin Plan objectives and to protect applicable beneficial uses. The Executive Officer will make a final determination as to the appropriate trigger limits.

IX. Quality Assurance Project Plan (QAPP)

The third-party must develop and/or maintain a QAPP that includes watershed and site-specific information, project organization and responsibilities, and the quality assurance components in the QAPP Guidelines. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health (DPH), except where the DPH has not developed a certification program for the material to be analyzed.

The East San Joaquin Water Quality Coalition's existing QAPP was approved by the Executive Officer on 25 November 2008. The existing QAPP is acceptable for use by the third-party. Any necessary modifications to the QAPP for groundwater monitoring shall be submitted with the MPEP and groundwater trend monitoring workplans (section IV, MRP). Any proposed modifications to the approved QAPP must receive Executive Officer approval prior to implementation.

The Central Valley Water Board may conduct an audit of the third-party's contracted laboratories at any time in order to evaluate compliance with the most current version of the QAPP Guidelines. Quality control requirements are applicable to all of the constituents listed in the QAPP Guidelines, as well as any additional constituents that are analyzed or measured, as described in the appropriate method. Acceptable methods for laboratory and field procedures as well as quantification limits are described in the QAPP Guidelines.

Table 5. Basin Plan Numeric Water Quality Objectives for the Eastern San Joaquin River Watershed. * Where more than one objective is applicable, the most stringent shall be applied.

Constituent / Parameter (Synonym)	Basin Plan Water Quality Objective	Source of Numeric Threshold <i>(footnotes in parentheses are at bottom of table)</i>	Numeric Threshold (a)	Units	G= Groundwater IS= Inland Surface Water	Numeric Threshold Protects Designated Beneficial Use(s) in the Water Body:							CAS Number
						Groundwater			Inland Surface Waters				
						MUN- MCL	MUN- Toxicity	AGR	MUN- MCL	MUN- Toxicity	Aquatic Life & Consump	AGR	
Boron, total	Chemical Constituents	Basin Plan. SJR, mouth of Merced R to Vernalis (15 Mar – 15 Sep)	2,000	ug/L	IS							X	7440-42-8
		Basin Plan. SJR, mouth of Merced R to Vernalis (15 Mar – 15 Sep)	800 (b)	ug/L	IS							X	
		Basin Plan. SJR, mouth of Merced R to Vernalis (16 Sep – 14 Mar)	2,600	ug/L	IS							X	
		Basin Plan. SJR, mouth of Merced R to Vernalis (16 Sep – 14 Mar)	1,000 (b)	ug/L	IS							X	
		Basin Plan. SJR, mouth of Merced R to Vernalis (critical year) (c)	1,300 (b)	ug/L	IS							X	
		Basin Plan. SJR from Sack Dam to mouth of Merced River	5,800	ug/L	IS							X	
		Basin Plan. SJR from Sack Dam to mouth of Merced River	2,000 (b)	ug/L	IS							X	
Chlorpyrifos	Pesticides	Basin Plan. SJR from Mendota Dam to Vernalis; 1-hour average	0.025	ug/L	IS						X	2921-88-2	
		Basin Plan. SJR from Mendota Dam to Vernalis; 4-day average	0.015	ug/L	IS						X		
Coliform, fecal	Bacteria	Basin Plan (d) (e)	200/100	MPN/mL	IS				X			--	
		Basin Plan (d) (f)	400/100	MPN/mL	IS				X				
Coliform, total	Bacteria	Basin Plan	2.2/100	MPN/mL	G	X						--	
Conductivity at 25 C (Electrical conductivity)	Salinity	Basin Plan. SJR, Friant Dam to Mendota Pool	150	umhos/cm	IS							--	
		California Secondary MCL	900-1600	umhos/cm	G & IS	X	X		X	X			
Copper	Chemical Constituents	California Secondary MCL (total copper)	1,000	ug/L	G & IS	X			X	X		7440-50-8	
	Toxicity	California Toxics Rule (USEPA), (g) (dissolved copper)	variable	ug/L	IS					X			
Diazinon	Pesticides	Basin Plan. SJR from Mendota Dam to Vernalis; 1-hour average	0.16	ug/L	IS						X	50-29-3	
		Basin Plan. SJR from Mendota Dam to Vernalis; 4-day average	0.10	ug/L	IS						X		
Dissolved Oxygen, minimum	Dissolved Oxygen	Basin Plan. Merced R from Cressy to New Exchequer Dam, all year	8.0	mg/L	IS						X	7782-44-7	
		Basin Plan. Tuolumne R, Waterford to La Grange, 15 Oct – 15 Jun	8.0	mg/L	IS						X		
		Basin Plan. Waters designated WARM	5.0	mg/L	IS						X		
		Basin Plan. Waters designated COLD and/or SPWN	7.0	mg/L	IS						X		
Lead	Chemical Constituents	California Primary MCL (total lead)	15	ug/L	G & IS	X			X			7439-92-1	
	Toxicity	California Toxics Rule (USEPA) (g) (dissolved lead)	variable	ug/L	IS					X			

Constituent / Parameter (Synonym)	Basin Plan Water Quality Objective	Source of Numeric Threshold (footnotes in parentheses are at bottom of table)	Numeric Threshold (a)	Units	G= Groundwater IS= Inland Surface Water	Numeric Threshold Protects Designated Beneficial Use(s) in the Water Body:							CAS Number
						Groundwater			Inland Surface Waters				
						MUN- MCL	MUN- Toxicity	AGR	MUN- MCL	MUN- Toxicity	Aquatic Life & Consump	AGR	
Molybdenum, total	Chemical Constituents	Basin Plan. SJR, mouth of Merced R to Vernalis	15	ug/L	IS							X	7439-98-7
		Basin Plan. SJR, mouth of Merced R to Vernalis (monthly mean)	10	ug/L	IS							X	
		Basin Plan. SJR, Sack Dam to mouth of Merced R	50	ug/L	IS							X	
		Basin Plan. SJR, Sack Dam to mouth of Merced R (monthly mean)	19	ug/L	IS							X	
Nitrate (as nitrogen)	Chemical Constituents	California Primary MCL	10	mg/L	G & IS	X	X		X	X			14797-55-8
Nitrite (as nitrogen)	Chemical Constituents	California Primary MCL	1	mg/L	G & IS	X	X		X	X			14797-65-0
Nitrate+Nitrite (as nitrogen)	Chemical Constituents	California Primary MCL	10	mg/L	G & IS	X	X		X	X			--
pH – minimum	pH	Basin Plan	6.5	units	G & IS	X	X		X	X			--
pH – maximum			8.5	units	G & IS	X	X		X	X			
Selenium, total	Chemical Constituents	Basin Plan. SJR, mouth of Merced R to Vernalis	12	ug/L									7782-49-2
		Basin Plan. SJR, mouth of Merced R to Vernalis (4-day mean)	5	ug/L									
		Basin Plan. SJR, Sack Dam to mouth of Merced R	20	ug/L									
		Basin Plan. SJR, Sack Dam to mouth of Merced R (4-day mean)	5	ug/L									
	Toxicity	National Toxics Rule (USEPA), 4-day mean	5	ug/L	IS	X					X		
Simazine	Chemical Constituents	California Primary MCL	4	ug/L	G & IS	X	X		X	X			122-34-9
Temperature	Temperature	Basin Plan (h)	variable		IS								
Total Dissolved Solids (TDS)	Chemical Constituents	California Secondary MCL, recommended level	500 – 1,000	mg/L	G & IS	X	X		X	X			--
Turbidity	Turbidity	Basin Plan. Where natural turbidity is <1 NTU	2	NTU	IS								
		Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU.	variable; 2-6	NTU	IS								
		Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%.	variable; 6 - 70	NTU	IS								
		Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.	variable; 60-110	NTU	IS								
		Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%.	variable	NTU	IS								
Zinc	Chemical Constituents	California Secondary MCL (total zinc)	5,000	ug/L	G & IS	X			X				7440-66-6

Constituent / Parameter (Synonym)	Basin Plan Water Quality Objective	Source of Numeric Threshold (footnotes in parentheses are at bottom of table)	Numeric Threshold (a)	Units	G= Groundwater IS= Inland Surface Water	Numeric Threshold Protects Designated Beneficial Use(s) in the Water Body:							
						Groundwater			Inland Surface Waters				
						MUN- MCL	MUN- Toxicity	AGR	MUN- MCL	MUN- Toxicity	Aquatic Life & Consump	AGR	CAS Number
Zinc	Toxicity	California Toxics Rule (USEPA) (g) (dissolved zinc)	variable	ug/L	IS						X		

Footnotes to Table 8:

a	Numeric thresholds are maximum levels unless noted otherwise.
b	Monthly mean.
c	See Basin Plan for definition of Critical Year.
d	Applies in waters designated for contact recreation (REC-1).
e	Geometric mean of the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed this number.
f	No more than ten percent of the total number of samples taken during any 30-day period shall exceed this number.
g	These numeric thresholds are hardness dependent. As hardness increases, water quality objectives generally increase.
h	The natural receiving water temperature shall not be altered unless it can be demonstrated to the satisfaction of the Water Board that such alteration does not adversely affect beneficial uses. However, at no time shall the temperature of WARM and COLD waters be increased more than 5 degrees F above natural receiving water temperature.
Abbreviations:	
CAS	Chemical Abstracts Service Registry Number
fw	freshwater
MCL	maximum contaminant limit
MUN	municipal and domestic supply
Beneficial Uses:	
AGR – Agricultural water uses, including irrigation supply and stock watering	
Aquatic Life & Consump – Aquatic life and consumption of aquatic resources	
MUN-MCL – Municipal or domestic supply with default selection of drinking water MCL when available	
MUN-Toxicity – Municipal or domestic supply with consideration of human toxicity thresholds that are more stringent than drinking water MCLs	