
Central Coast Regional Water Quality Control Board

Via Electronic Mail

DATE: August 27, 2012

TO: Emel Wadhvani
Staff Counsel
State Water Resources Control Board/Office of Chief Counsel

FROM: Michael Thomas
Assistant Executive Officer
CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

**SUBJECT: IN THE MATTER OF PETITIONS OF OCEAN MIST FARMS AND RC FARMS;
GROWER-SHIPPER ASSOCIATION OF CENTRAL CALIFORNIA, GROWER-SHIPPER ASSOCIATION OF SANTA BARBARA AND SAN LUIS OBISPO COUNTIES, AND WESTERN GROWERS, ORDER NO. R3-2012-0011, CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGERS FROM IRRIGATED LANDS AND ORDER NOS R3-2012-0011-01, R3-2012-0011-02, AND R3-2012-0011-03 MONITORING AND REPORTING PROGRAMS: SUMMARY OF CENTRAL COAST WATER BOARD TESTIMONY REQUESTING DISMISSAL OF STAY REQUEST, SWRCB/OCC FILES A-2209(C) AND (D).**

The State Water Resources Control Board's Notice of Public Hearing dated August 21, 2012, provided that a hearing will be held on August 30, 2012 to consider issuance of a stay of certain provisions of Order No. R3-2012-0011, Conditional Waiver of Waste Discharge Requirements for Dischargers from Irrigated Lands and the accompanying Monitoring and Reporting Program Orders (hereafter collectively referred to as 2012 Order). As invited by the State Water Resources Control Board (State Water Board) in the notice, the Central Coast Regional Water Quality Control Board (Central Coast Water Board or Water Board) hereby submits the following: (a) list of witnesses, (b) summary of testimony and written responses to the questions posed under section "ISSUES TO BE ADDRESSED", (c) powerpoint presentation, and (d) list of physical evidence and exhibits that the Central Coast Water Board wishes to introduce into the record and intend to use at the hearing in opposition to the stay requests by the Petitioners at the hearing to be held on August 30, 2012.

The Central Coast Water Board's information below regarding the stay request is limited to the narrow set of issues identified in the notice to assist the State Water Board in its determination of whether to grant Petitioners' request that certain provisions of the 2012 Order be stayed.

If you have any questions, please contact Frances McChesney by phone at (916) 341-5174 or by email at fmcchesney@waterboards.ca.gov, or Michael Thomas by phone at (805) 542-4623 or by email at mthomas@waterboards.ca.gov.

cc:

Note: The Central Coast Water Board is providing our documents to the parties to the hearing by the following link on the Central Coast Water Board's website:

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/ag_order.shtml

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Farms, Inc. and William Elliott [File No. A-2209(e)]

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**CENTRAL COAST WATER BOARD
WRITTEN RESPONSES AND SUMMARY OF TESTIMONY
REQUESTING DISMISSAL OF STAY REQUEST
LIST OF WITNESSES, POWERPOINT PRESENTATION, LIST OF PHYSICAL EVIDENCE
AND EXHIBITS: SWRCB/OCC FILES A-2209(C) AND (D)**

I. LIST OF WITNESSES

Central Coast Water Board Assistant Executive Officer Water Resources Control Engineer	Michael Thomas
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Central Coast Water Board Senior Engineering Geologist Agricultural Regulatory Program Manager and Supervisor Registered Geologist	Angela Schroeter
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Central Coast Water Board Staff Water Resources Control Engineer Certified Crop Advisor, Certified Irrigation Designer B.S. Agronomy, M.S. General Agriculture	Monica Barricarte
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II. OTHER CENTRAL COAST WATER BOARD REPRESENTATIVES

Central Coast Water Board Chair [Will be providing introduction and policy statement.]	Jeff Young
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State Water Resources Control Board Office of Chief Counsel	Frances McChesney
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State Water Resources Control Board Office of Chief Counsel	Jessica Jahr
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**III. SUMMARY OF TESTIMONY AND WRITTEN RESPONSES TO THE QUESTIONS
POSED UNDER SECTION "ISSUES TO BE ADDRESSED"**

Stay Request

State Water Board regulations recognize the extraordinary nature of a stay remedy and place a heavy burden on the seeker of the stay.¹ In order to issue a stay of all or certain provisions of Order No. R3-2012-0011 and the accompanying Monitoring and Reporting Program Orders (hereafter 2012 Order), the State Water Board must find that the Petitioners have alleged facts and produced proof of: (1) substantial harm to the Petitioners or to the public interest if a stay is not granted; (2) a lack of substantial harm to other interested persons and to the public interest if a stay is granted; and (3) substantial questions of law or fact regarding the disputed action.² It is incumbent on the Petitioners to meet all three prongs of the test before a stay may be granted.³ In addition, the issue of whether a stay is appropriate must be judged in the temporal sense – the Petitioners must prove that they will suffer substantial harm if a stay is not granted

¹ See State Water Board Order WQ 97-05 (*Ventura County Citizens*) at page 4.

² See California Code of Regulations, Title 23, § 2053.

³ See State Water Board Order WQO 2002-0007 (*County of Los Angeles, et al.*).

for the period of time pending resolution of the petition on the merits.⁴ The issue before the State Water Board is *not* whether the Petitioners might prevail on any of the merits of its claims, or whether the Petitioners will suffer harm over the term of the Order.

In summary, the Central Coast Water Board requests that the State Water Board deny the Petitioners request for a stay of provisions of the 2012 Order for the following specific reasons:

1. **There is no substantial harm to the Petitioners or the public if the stay is not granted.** The costs to growers enrolled in the Order are reasonable given the existing and potential severe water quality impairments associated with the discharges. The cost estimates presented herein reflect the actual requirements in the 2012 Order, the Central Coast Water Board's expectations regarding compliance with the requirements, and the fact that the previous Order No. R3-2004-0117⁵ adopted in 2004 (2004 Order) included substantial and similar requirements. The extraordinary costs alleged by Petitioners are not based on the actual requirements in the 2012 Order, or the Central Coast Water Board's expectations regarding compliance, and do not account for the substantial and similar requirements in the Central Coast Water Board's 2004 Order and the work that should have been done to comply with the 2004 Order. The provisions included in the 2012 Order that are challenged by the Petitioners Request for Stay are standard practices recommended by the University of California Cooperative Extension (UCCE) and Natural Resources Conservation Service (NRCS), and implemented routinely by growers. The costs through the end of 2013 are necessary to comply with specific provisions of the 2012 Order, are limited, and do not similarly affect all growers enrolled in the 2012 Order. The range of costs to enrolled growers depends on the farm-specific characteristics, level of discharge, threat to water quality, and how well dischargers complied with the 2004 Order in implementing management practices to achieve water quality standards. If a discharger did little to comply with the 2004 Order, their cost to comply now will be much higher than it otherwise would be had the grower implemented effective management practices as required by the 2004 Order. However, noncompliance and the resulting deferral of costs are not a defensible reason for a Stay.
2. **There is substantial harm to other interested persons and to the public interest if the stay is granted,** especially in rural communities whose drinking water is severely impacted by the agricultural discharges to groundwater (nitrate), and the public and individuals who are affected by impairments to surface water bodies (toxicity, pesticides, nutrients, sediment/turbidity, temperature). Existing and potential water quality impairment takes on added significance and urgency given the impacts on public health, limited sources of drinking water supplies and proximity of the Central Coast region's agricultural lands to critical habitat for species of concern. Groundwater nitrate contamination brings two forms of susceptibility: public health risks and the economic costs of avoiding such risks through treatment, source reduction, remediation, or alternative water supplies. The Central Coast Region is particularly susceptible to public health and financial risks from nitrate contamination because the Salinas Valley and similar agricultural areas have many poor communities that cannot afford drinking water treatment or capital-intensive alternative water supplies. The application of fertilizer on a landscape scale is immense, resulting in substantial pollutant loading to groundwater and drinking water supplies. The increasing health threat and economic cost is critical in

⁴ See *id.*

⁵ Note that the 2004 Order was renewed multiple times by the Central Coast Water Board or the Executive Officer without revision during the public process that lead to adoption of the 2012 Order.

both the short-term and the long-term. The estimated annual cost to ensure safe drinking water for a self-supplied household can cost from \$250 to \$185,500 and the annual cost for a small community public water system ranges from \$40,000 to \$15.1 Million.⁶ These costs are also discussed in Appendix F of the Staff Report for Board Meeting Item 14, March 2011, Central Coast Water Board.

- 3. There are no substantial questions of fact or law regarding the Order.** The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) grants authority to the Regional Water Boards to regulate discharges of waste that could affect the quality of waters of the State and to adopt water quality regulations and policy. Dischargers of waste are required to obtain waste discharge requirements or a waiver and comply with requirements to protect the beneficial uses of waters of the state. The Central Coast Water Board complied with the Porter-Cologne Act and applicable policies and regulations in adopting the renewed waiver. The Central Coast Water Board engaged in a lengthy public process to update the Order, complied with the California Environmental Quality Act (CEQA), and adopted an Order that is consistent with applicable plans and policies adopted by the State Water Board and Central Coast Water Board, including but not limited to the Water Board's Policy for Implementation and Enforcement of Nonpoint Source Pollution Control Program and the Central Coast Water Board's Water Quality Control Plan for the Central Coast Region (Basin Plan). The process to renew the 2004 Order began in August 2008 and has been the most extensive public process in the history of the Central Coast Water Board – including five draft orders and associated staff reports, six public comment periods, six public workshops and hearings before the Board, over 60 outreach events and many discussions with stakeholders. The Central Coast Water Board invited interested persons to submit alternative proposals for consideration and staff made hundreds of changes to the initial draft order in response to comments from agricultural organizations.

Background

The Central Coast Region has approximately 435,000 acres of irrigated land and produces many high value specialty crops including lettuce, strawberries, raspberries, artichokes, asparagus, broccoli, carrots, cauliflower, celery, fresh herbs, mushrooms, onions, peas, spinach, wine grapes, tree fruit, and nuts. The 2012 Order updates the 2004 Order and sets forth conditions consistent with Water Code section 13269 that apply to discharges of waste from irrigated lands, where water is applied for producing commercial crops.

Discharges of waste associated with agricultural discharges (e.g., pesticides, sediment, nutrients) are a major cause of water pollution in the Central Coast Region, as detailed in the 2012 Order (Findings 5-8; Attachment A – Additional Findings 1, 27, 33-133), and the March 17, 2011 staff report to the Board (see staff report and Appendix G – Report on Water Quality Conditions). The water quality impairments are well documented, severe, and widespread. Nearly all beneficial uses of water are affected, and many agricultural waste discharges continue to contribute to already significantly impaired water quality and impose certain risks and significant costs to public health, drinking water supplies, aquatic life, and valued water resources.

⁶ Harter, T. et al. UC Davis Groundwater Nitrate Project, Implementation of Senate Bill X2 1 Prepared for California State Water Resources Control Board January 2012. Addressing Nitrate in California's Drinking Water. Table 14 Safe drinking water option costs for self-supplied household and small community public water systems. <http://groundwaternitrate.ucdavis.edu/>

Discharges from irrigated lands regulated by the 2012 Order include discharges of waste to surface water and groundwater. The 2012 Order classifies farms/ranches into one of three Tiers. The requirements for each Tier vary based on level of discharge and risk to water quality, and there are options and alternatives to comply based on the specific characteristics of an individual farm. For many farms (Tier 1 and Tier 2), the 2012 Order requirements are similar or less stringent than the previous 2004 Order. Farms in Tier 3 present a relatively higher level of risk to water quality and therefore have more stringent requirements.

As of August 2012, approximately 4129 farms/ranches, representing approximately 399,494 irrigated acres are enrolled in the 2012 Order. Of these farms/ranches, approximately 3680 farms/ranches (89% of the total farms/ranches enrolled) representing approximately 366,231 irrigated acres (91% of the total acres enrolled) have a completed electronic-Notice of Intent (eNOI) in the Water Board's GeoTracker data management system that can be used for tier assignment⁷. The remaining farms/ranches have not complied with the requirement to submit an updated eNOI or have not submitted sufficient information for tier assignment. Table 1 below includes the approximate number of farms and acreage in each Tier based on completed eNOI data in GeoTracker.

Table 1. Estimated number of farms and acreage in Tier 1, Tier 2, and Tier 3 based on eNOI data in GeoTracker as of August 2012.

	TIER 1	TIER 2	TIER 3	Total
Number of Farms/Ranches	2024	1546	110	3680
Number of Acres	142,010	183,632	40,588	366,231

III. ISSUES TO BE ADDRESSED

Issue 1: Costs to Comply

The State Water Board instructed parties to provide cost estimates, and the underlying assumptions for those cost estimates, for specific actions through the end of 2013 necessary to comply with certain provisions in the 2012 Order. Each provision is addressed separately in this testimony, below.

Response 1:

It is essentially impossible for Central Coast Water Board to estimate actual costs to individual growers due to the following variables across 4,129 farms/ranches enrolled in the 2012 Order:

The degree to which individual growers complied with the 2004 Order

⁷ Enrollment information in the Water Board's GeoTracker data management system as of Aug. 1, 2012.

The diversity of irrigated agriculture in the Central Coast Region
The variation in site-specific environmental conditions
The site-specific applicability of management practices
The flexible compliance options in the 2004 Order and the 2012 Order
The degree to which growers utilize low costs or free technical services
The degree to which growers participate in and utilize grant projects

Therefore, we consider costs in relative terms. Any consideration of costs must account for work that growers were required to do to comply with the 2004 Order and how that work directly relates to the 2012 Order. We do not attempt to estimate costs for growers who did not comply with the 2004 Order over the past 8 years, and who now believe they must implement substantial practices and report effective results in the near term (through 2013) to comply with the 2012 Order. Such cost estimates would be deferred costs due to non-compliance, and are not valid.

The 2012 Order was built upon the 2004 Order. The first sentence of the first finding in the 2004 Order states:

“The intent of this Conditional Waiver is to regulate discharges from irrigated lands to ensure that such discharges are not causing or contributing to exceedances of any Regional, State, or Federal numeric or narrative water quality standard.”

Finding 2 of the 2004 Order states:

“Discharges include surface discharges (also known as irrigation return flows or tailwater), subsurface drainage generated by installing drainage systems to lower the water table below irrigated lands (also known as tile drains), discharges to groundwater through percolation, and storm water runoff flowing from irrigated lands. These discharges can contain wastes that could affect the quality of waters of the state.”

Finding 43 of the 2004 Order states:

Basin Plan – The Regional Board adopted the Water Quality Control Plan, Central Coast Basin (Basin Plan) on September 8, 1994. The Basin Plan incorporates State Board plans and policies by reference and contains a strategy for protecting beneficial uses of surface and ground waters throughout the Region. This conditional waiver requires Dischargers to comply with all applicable provisions of the Basin Plan.

Finding 45 of the 2004 Order includes this statement:

Dischargers must comply with all applicable provisions of the Basin Plan, including water quality objectives, and implement best management practices to prevent pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.

Finding 46 of the 2004 Order:

The goal of this Order and Conditional Waiver is to improve and protect water quality by providing a program to manage discharges from irrigated lands that cause or contribute to conditions of pollution or nuisance as defined in Section 13050 of the California Water

Code or that cause or contribute to exceedances of any Regional or State Board numeric or narrative water quality standard by reducing discharges of waste.

The 2004 Order also states:

Dischargers shall take action to comply with the terms and conditions of the waiver adopted by this Order and improve and protect waters of the state.

The 2004 Order defines a Farm Water Quality Management Plan as follows:

Farm Water Quality Management Plan (Farm Plan) - a document that contains, at a minimum, identification of practices that are currently being or will be implemented to address irrigation management, pesticide management, nutrient management and erosion control to protect water quality. Plans will contain a schedule for implementation of practices. Lists of water quality protection practices are available from several sources, including the University of California farm plan template available from the University of California.

The 2004 Order also states:

All applicants must submit the following information as part of their Notice of Intent (NOI) to enroll:

- *Completed application form, including location of the operation and identification of responsible parties (owners/operators)*
- *Copy of map of operation (map should be the same as the one submitted to the County Agricultural Commissioner for Pesticide Use Reporting, or equivalent)*
- *Completed management practice checklist/self assessment form*
- *Certificates of attendance at Regional Board-approved farm water quality education courses, if applicable*
- *Statement of farm water quality plan completion, if applicable*
- *Election for cooperative or individual monitoring*

The 2004 Order also included the following reporting requirements:

Tier 1 Qualifications and Reporting Requirements

Tier 1 conditional waivers will be five years in length. To qualify for a Tier 1 conditional waiver, Dischargers must do the following:

- a. *complete 15 hours of Regional Board-approved farm water quality education by the enrollment deadline*
- b. *complete a Farm Plan by the enrollment deadline*
- c. *provide a biennial practice implementation checklist to the Regional Board demonstrating that the Discharger is implementing the Farm Plan, or that the Discharger has made and is implementing appropriate changes to the Farm Plan*
- d. *perform individual water quality monitoring or participate in cooperative water quality monitoring*

Tier 2 Qualifications and Reporting Requirements

Tier 2 conditional waivers will be one year in length, renewable up to three years. To qualify for a Tier 2 conditional waiver, operations must do the following:

- a. complete at least 5 hours of Regional Board-approved water quality education per year, up to a total of at least 15 hours (the first 5 hours may be completed after enrollment)
- b. complete a Farm Plan within three years of the enrollment deadline
- c. provide annual practice implementation checklists identifying currently implemented and planned management practices and progress reports on completion of requirements to the Regional Board
- d. perform individual water quality monitoring or participate in cooperative water quality monitoring

The 2004 Order also states the following conditions for all waiver holders:

1. *The Discharger shall not cause or contribute to conditions of pollution or nuisance as defined in CWC Section 13050.*
2. *The Discharger must comply with all requirements of applicable water quality control plans.*
3. *The Discharger shall not cause or contribute to exceedances of any Regional, State, or Federal numeric or narrative water quality standard.*
4. *Wastewaters percolated into groundwater shall be of such quality at the point where they enter the ground so as to assure the protection of all actual or designated beneficial uses of all groundwaters of the basin.*
5. *Wastes discharged to groundwater shall be free of toxic substances in excess of maximum contaminant levels (MCLs) for primary and secondary drinking water standards established by the United States Environmental Protection Agency or California Department of Health Services, whichever is more stringent; taste, odor, or color producing substances; and nitrogenous compounds in quantities which could result in a groundwater nitrate concentration (as NO₃) above 45 mg/l.*
6. *The Discharger shall comply with each applicable Total Maximum Daily Load (TMDL), including any plan of implementation for the TMDL, commencing with the effective date or other date for compliance stated in the TMDL. If an applicable TMDL does not contain an effective date or compliance date, the Discharger shall commence compliance with the TMDL's implementation plan no later than twelve months after USEPA approves the TMDL.*
7. *The Discharger shall comply with applicable time schedules.*
8. *This Conditional Waiver does not authorize the discharge of any waste not specifically regulated under this Order. Waste specifically regulated under this Order includes: earthen materials, including soil, silt, sand, clay, rock; inorganic materials including metals, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.; and organic materials such as pesticides that enter or threaten to enter into waters of the*

state. Examples of waste not specifically regulated under this Order include hazardous materials, and human wastes.

9. *Objectionable odors due to the storage of wastewater and/or stormwater shall not be perceivable beyond the limits of the property owned or operated by the Discharger.*

The 2004 Order clearly required the implementation of management practices to achieve water quality standards, including irrigation management practices, pesticide management practices, nutrient management practices, and erosion control practices to protect water quality, all of which should have been described in Farm Water Quality Management Plans (Farm Plans) with implementation schedules. Thus, these types of requirements and the costs associated with them are not new. The 2004 Order also required education, monitoring, and reporting.

During the many Board workshops for the 2012 Order, farmers and farm representatives stated repeatedly that the majority of farmers were already implementing all or nearly all management practices as required by the 2004 Order. For example, in a March 25, 2010 comment letter to the Central Coast Water Board, the President of R.C. Farms LLC indicated that *"We have been operating for the last 5 and one-half years under the current Ag Waiver. We have and are implementing management practices to be in compliance with that waiver."* In a similar comment letter dated March 30, 2010, the Santa Barbara County Farm Bureau stated *"Our members supported the initial Conditional Ag Waiver that your Board adopted in 2004... They participated in numerous education and outreach programs along with the development and implementation of Farm Plans that focused on the management of their distinct operations."* In another comment letter dated April 1, 2010, representatives of Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties state *"In fact, many growers in the Central Coast have changed cultural practices to better protect water quality"*. The record contains literally hundreds of letters from growers with similar statements.

In addition, farmers reported the practices they were implementing in management practice checklists summarized by the Water Board in the 2006 Management Practice Checklist Summary Report⁸. If the information submitted to the Water Board was false, or if farmers did not comply with the 2004 Order, such events cannot be used as justification for "new" costs.

Most of the provisions of the 2004 Order and the 2012 Order are based on standard management practices promoted routinely by the University of California Division of Agriculture and Natural Resources (UCANR), University of California Cooperative Extension (UCCE), the U.S. Department of Agriculture - Natural Resources Conservation Services (NRCS) and many agricultural industry groups. Hence, the source of cost information previously reported in the record for the 2012 Order and referred to in responses are taken from information developed by these organizations. Cost information from these sources and other agricultural technical consultants are summarized in Table 4 and Table 5, page 17, Appendix F, Staff Report for Board Meeting Item 14, March 2011, Central Coast Water Board.

The Water Board developed the 2012 Order, such that in general the provisions apply to specific farms based on the provision either being specific to one or two of the three Tiers or because the provision is specific to water quality protection for a certain farm location (e.g., adjacent to an already impaired creek), or operational characteristics (e.g., apply fertilizer through an irrigation system). In addition, most of the provisions include alternatives to the

⁸ Central Coast Water Board. June 2007. 2006 Management Practice Checklist Summary Report.

primary action to comply with the provision, providing flexibility for growers to implement the most appropriate and least costly management practice that will effectively reduce pollutant loading and eventually achieve compliance with water quality standards in their given situation. Many provisions are ongoing and iterative, and do not have a specific completion date. In these cases, growers are required to initiate actions but are not required to complete the actions by 2013. The cost estimates discussed below assume that the grower has complied with the 2004 Order, has been and is currently implementing management practices, and is evaluating the effectiveness of those management practices, and can therefore continue this work in a reasonable manner and report the results to the Water Board.

There is wide range of potential costs for growers to comply with specific provisions in the 2012 Order. The Water Board cannot estimate the wide range of costs that growers are facing, depending on their situation (ranging from complete non-compliance with the 2004 Order to comprehensive approaches beyond the requirements of the 2012 Order). The variability of farm characteristics and variety of approaches and alternatives and flexibility in the 2012 Order make such a cost estimate impossible. The cost estimates described below are based on the Central Coast Water Board's expectations for what growers need to do to comply through the end of 2013, assuming that growers have complied with the 2004 Order.

It should also be noted that numerous grant funding programs have existed and continue to exist to support agricultural water quality improvement. For example, the State Water Board has made more than \$600 Million of public grant funds available from 2000 – 2011 to address agricultural water quality issues. In the Central Coast region specifically, the State Water Board awarded more than \$55 Million in grants funds to agricultural related projects. Most recently, the Water Board awarded approximately \$3 Million in Proposition 84 grant funds for local Resource Conservation Districts (RCDs) to implement irrigation and nutrient management practices in agricultural areas of the Central Coast Region to reduce nitrate loading to groundwater and surface water. In addition, the Central Coast Water Board is in the process of making \$10,000 in grant funds available to assist small farms and financially disadvantaged growers to conduct required groundwater monitoring and reporting. There are also many public and non-profit resources available to the agricultural industry to share technical assistance for pollution prevention and to address water quality problems associated with irrigated agriculture, including NRCS, RCDs, and UCCE. These resources can often provide low-cost assistance, grant funding, and cost-share funding for implementation of management practices to help reduce costs to growers.

In addition, the costs estimates submitted by Petitioners cannot reasonably be used to make decisions regarding a Stay. Legitimate cost estimates to show substantial harm should be determined by a qualified, objective, third party, and must account for work that should have been done to comply with the requirements of the 2004 Order. The resulting cost estimates should then be compared to revenues and profits. For example, Mr. William Thomas's declaration, on behalf of Ocean Mist Farms, states that it will cost Ocean Mist Farms ~\$50 to \$100/acre to comply with the 2012 Order through 2013. This may be a reasonable to cost to pay to protect water quality, but there is no way of knowing because no valid cost analysis has been done. The Central Coast of California is one of the most profitable agricultural regions in the nation. For Monterey County alone, the 2011 Monterey County Crop Report calculated total crop values of \$3,852,995,000⁹. The Crop Report reported a 2011 crop value of \$ \$49,331,000 for artichokes, a primary crop produced by Ocean Mist Farms. Spread over a reported 4992

⁹ County of Monterey Agricultural Commissioner. 2011 Monterey County Crop Report. http://ag.co.monterey.ca.us/assets/resources/assets/252/cropreport_2011.pdf

acres, artichokes had a 2011 crop value of \$9,882/acre. Without a comprehensive and objective analysis that compares objective cost estimates to revenue and profit, there is no showing of substantial harm. Also, the resulting actual cost estimates must then be compared to the extraordinary costs to society for the increasingly severe surface water and groundwater pollution problems caused by irrigated agriculture.

Summary of Central Coast Water Board Cost Estimates

Table 2, below, is a summary list of costs for the specific provisions identified in the Hearing Notice. For the purpose of this hearing, as per the Hearing Notice, new costs (identified in **BOLD** below) are for new actions that must be done in 2013.

Table 2. Summary of costs for specific provisions defined in the Hearing Notice for this proceeding (new costs are identified in **BOLD** are for new actions that must be done in 2013.)

No.	Provision	Estimated Cost per Farm
31	Backflow prevention devices	\$0 - \$435
33	Maintenance of containment structures	\$0 - \$1440
39	Maintenance of riparian vegetative cover and or riparian areas	\$0
44(g)	Practice effectiveness and compliance reporting	\$0 - \$3600
51	Groundwater monitoring	\$0 if no groundwater wells on farm \$400 - \$1200 for Tier 1 and Tier 2 \$600 - \$1800 for Tier 3
67	Annual compliance form reporting	\$0 – \$1440 for Tier 2 and Tier 3
68	Determination of nitrate loading risk factors and determination of total nitrogen applied	\$0 – \$720 for Tier 2 and Tier 3
69	Photo monitoring	\$0 - \$1440 per half-mile of stream for Tier 2 and Tier 3
72, 73	Individual surface water discharge monitoring and reporting	\$0 if no discharge \$6,301 to \$8551 for Tier 3 Only

For Tier 1 farms, the estimated range in total cost for the specific provisions identified in the Hearing Notice is \$0 - \$6675.

For Tier 2 farms, the estimated range in total cost for the specific provisions identified in the Hearing Notice is \$0 - \$10,275.

For Tier 3 farms, the estimated range in total cost for the specific provisions identified in the Hearing Notice is \$0 - \$19,426.

The cost range could be much higher than the estimates above depending on the degree to which growers did not comply with the 2004 Order. We do not attempt to provide estimates for this situation.

Specific Cost Estimates and Assumptions

Cost estimates, and the underlying assumptions for those cost estimates, for specific actions through the end of 2013 necessary to comply specific provisions are summarized in the tables below and discussed in more detail in the subsequent text.

Issue 1A: Installation of back flow prevention devices (Provision 31)

Applicability	Applies to subset of Tier 1, 2 and 3 farms that chemigate or fertigate. (precise number of farms unknown)
Due Date	October 1, 2012
Purpose	To prevent fertilizers and pesticides applied through an irrigation system from flowing directly back down a groundwater well or to surface water causing pollution.
Threat to water quality	High
Estimated Range of Costs for Growers to Comply (2013)	\$0 - \$435 per farm
Factors Affecting Cost to Growers	Not all growers fertigate or chemigate (apply fertilizers or chemicals through an irrigation system). Growers who do must already comply with backflow prevention requirements required for chemigation by Department of Pesticide Regulation (DPR). Between 66-77% of growers who submitted a management practice checklist to comply with the 2004 Order reported already having adequate backflow prevention. Thus, there are likely only a limited number of growers who would have to incur new costs by installing backflow prevention devices for fertigation to comply with Provision 31.
Cost to the public for non-compliance	Costs to municipalities, water purveyors, and homeowners to deal with polluted groundwater are in the millions of dollars over time. Contamination of groundwater is critically important to nearby residents who use domestic wells.

Provision 31 of the 2012 Order requires growers that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system to have functional and properly maintained back flow prevention devices. This provision applies to the subset of Tier 1, 2 and 3 farms that fertigate or chemigate. The use of backflow prevention devices is a standard industry practice recommended by the University of California Division of Agriculture and Natural Resources (UCANR) as a specific “Management Goal “ identified as “the best economically achievable technology or process for limiting the movement of nutrients, particularly nitrogen and phosphorus, into ground or surface waters”.¹⁰¹¹ In addition, existing DPR regulation already

¹⁰ Pettygrove, G.S., T. Hartz, R. Smith, T. Lockhart, B. Hanson, L. Jackson, and S. Grattan. 2003. Farm Water Quality Plan Fact Sheet 3.4. Nutrient Management Goals and Management Practices for Cool-Season Vegetables. UCANR Publication 8097.

¹¹ NRCS Conservation Practice Standard, Irrigation Water Management, Code 449, May 2011.

requires backflow prevention devices for chemigation (Section 6610 of Title 3 of the California Code of Regulations).

The cost of this action ranges from \$0 - \$435 per farm, as a one-time cost. Growers who have already installed backflow prevention devices as a standard practice or in compliance with existing DPR regulation do not incur new costs. Growers who newly initiate fertigation would need to install backflow prevention devices. The amount of \$435 is the estimated cost for growers who need to install new backflow prevention devices for fertigation. These cost estimates were based on information provided by Pacific Ag Water in Santa Maria, CA (who provide professional irrigation system and equipment services) and documented at page 19, Table 5, Appendix F, Staff Report for Board Meeting Item 14, March 2011, Central Coast Water Board.

Based on data reported by growers for the 2006 Management Practice Checklist, approximately 66% of the growers who submitted the checklist reported they use chemigation and had a backflow prevention device. Similarly, 71% of the growers who submitted the checklist reported that they use fertigation and had measures in place to ensure that there is not backflow into wells or other sources. Thus, there are likely only a limited number of growers who would have to incur new costs to comply with Provision 31. Cost will be less for growers who share a primary irrigation system; in these cases the same cost of the device would be shared by multiple farms. In other cases, larger farms may have increased cost if they have multiple irrigation systems used for fertigation.

Issue 1B. Maintenance of containment structures (Provision 33)

Applicability	Applies to subset of Tier 1, 2 and 3 farms that have at least one containment structure. (precise number of farms unknown)
Due Date	Growers are required to continue or initiate actions, but are not required to complete any specific action by 2013. This requirement was in the 2004 Order. This is not new.
Purpose	To avoid percolation of waste (e.g., nitrate, pesticides) to groundwater and to minimize surface water overflows that have the potential to impair water quality.
Threat to Water Quality	High
Estimated Range of Costs to Comply (2013)	\$0 - \$1440 per farm (8 hours of consulting services @ \$180/hour)
Factors Affecting Costs to Growers	Not all growers have a containment structure that receives waste. There are multiple standard practices and methods that growers can use to manage, construct, or maintain containment structures to avoid percolation of waste to groundwater and to minimize surface water overflows that have the potential to impair water quality. Many growers have already completed actions to comply with previous requirements in the 2004 Order to implement practices to protect water quality.
Cost to the public for non-compliance	Costs to municipalities, water purveyors, and homeowners to deal with polluted groundwater are in the millions of dollars over time. Contamination of groundwater is critically important to nearby residents

	who use domestic wells.
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Provision 33 in the 2012 Order requires maintenance of containment structures to prevent percolation of waste to groundwater and minimize surface water overflows. The provision applies to Tier 1, 2, and 3 farms that have a containment structure (there is no requirement in the 2012 Order to build new containment structures). The maintenance of containment structures to prevent percolation of waste to groundwater and minimize surface water is a standard industry practice. This provision does not require specific actions or full implementation of improved maintenance by 2013. Nor does this provision require documentation that containment structures fully prevent percolation of waste to groundwater or minimization of surface water overflows by a specified date.

The requirement to manage containment structures appropriately and protect groundwater is not new. The 2004 Order required growers to implement management practices to protect groundwater quality and comply with water quality standards. Among other things, the 2004 Order included the following required conditions with respect to groundwater:

Wastewaters percolated into groundwater shall be of such quality at the point where they enter the ground so as to assure the protection of all actual or designated beneficial uses of all groundwaters of the basin.

Wastes discharged to groundwater shall be free of toxic substances in excess of maximum contaminant levels (MCLs) for primary and secondary drinking water standards established by the United States Environmental Protection Agency or California Department of Health Services, whichever is more stringent; taste, odor, or color producing substances; and nitrogenous compounds in quantities which could result in a groundwater nitrate concentration (as NO₃) above 45 mg/l.

Growers who complied with the 2004 Order would not need to do anything new to maintain their containment structures per the 2012 Order. By 2013, the Water Board expects growers who have containment structures to continue to implement management practices and improve them if necessary to control their discharges of waste and eventually achieve water quality standards. As part of their effective management practices growers should be evaluating the degree to which any waste will discharge to groundwater or surface water, considering factors such as depth to groundwater, what chemicals may be present in the containment structure water, what estimated volume of water is present in the structure and when, the proximity of drinking water wells, and proximity to surface water.

The cost of these actions through 2013 is estimated to range from \$0 - \$1440 per farm, assuming growers complied with the 2004 Order. Through the end of 2013, for growers to continue to implement existing management practices or for growers who have newly constructed containment structures who would need to initiate a qualitative evaluation of the potential for waste to discharge to groundwater or surface water, staff estimates growers may need up to 8 hours of consulting services from a qualified personnel at a rate of approximately \$1800/hr. The Water Board's estimate of professional consulting services ranged from \$100 to \$250 per hour. \$180 is the median value for this range. The cost to implement management practices or evaluate containment structures could be substantially higher if a grower took little

or no action to comply with the 2004 Order. We do not speculate on or estimate costs for that scenario.

This is a standard NRCS practice¹² and the NRCS and RCDs provide information and assistance to growers on standard industry practices to construct and maintain agricultural containment structures.¹³ These methods and practices include, but are not limited to the following:

- minimize volume of water in containment structure to minimize percolation;
- minimize percolation via a liner or low permeability soil floor;
- chemical treatment (e.g., enzymes);
- biological treatment (e.g., wood chips);
- contained water is recycled or reused to prevent infiltration or discharge

Issue 1C. Maintenance of riparian vegetative cover and of riparian areas (Provision 39)

Applicability	Applies to subset of Tier 1, 2 and 3 farms that are adjacent to a riparian area. (precise number of farms unknown)
Due Date	Growers are required to continue or initiate actions, but are not required to complete any specific action by 2013.
Purpose	To prevent discharge of waste by protecting existing riparian vegetation.
Threat to water quality	High
Estimated Range of Costs to Comply (2013)	\$0 per farm
Factors Affecting Cost to growers	Maintaining existing vegetation does not incur any costs because compliance with this provision simply requires avoiding actions that encroach on existing, natural riparian areas and remove or impact the vegetation or streambanks. This provision does not prevent maintenance of riparian areas for flood control and other permitted purposes.
Costs to the public for not complying	Degradation of riparian habitat increases the transport of pollution, such as sediment and chemicals that adhere to sediment, and causes increasing degradation beneficial uses and loss of environmental services downstream throughout a watershed. Economic studies have estimated the value of riparian habitat and the environmental services such habitat provides in both qualitative and quantitative terms.

Provision 39 of the 2012 Order requires growers to maintain existing, naturally occurring, riparian vegetative cover (such as trees, shrubs, and grasses) in aquatic habitat areas to minimize the discharge of waste such as sediment and chemicals that adhere to sediment. This provision applies to the subset of Tier 1, 2 and 3 growers who farm adjacent to a riparian area.

By 2013, the Water Board expects growers who farm adjacent to surface waterbodies to continue to reasonably maintain existing trees, shrubs, and grasses in riparian areas to

¹² NRCS Conservation Practice Standard, Irrigation Reservoir, Code 436, May 2011. NRCS Conservation Practice Standard, Ponds, Code 378, May 2011.

¹³ USDA NRCS Agricultural Handbook No. 590.1997. Ponds – Planning, Design, and Construction.

minimize the discharge of waste such as sediment and chemicals that adhere to sediment. Growers would do this by not denuding riparian vegetation or otherwise removing vegetation to the degree that it causes discharges and degradation of water quality and beneficial uses.

Cost of this action through the end of 2013 is \$0 per farm (costs per acre do not apply). Maintaining existing vegetation does not incur any costs because compliance with this provision simply requires avoiding actions that encroach on existing, natural riparian areas and remove or impact the vegetation or streambanks. This condition does not require installation of any equipment, changing the area farmed, technical delineation or characterization of riparian or streambank conditions. This provision does not prohibit maintenance of riparian areas for flood control or other purposes, and does not preclude other permitted activities. This provision does not conflict with the Leafy Green Marketing Agreement, which acknowledges that growers must comply with agency requirements to protect riparian habitat.

This requirement is consistent with California Department of Fish and Game regulations and policies to protect fish, wildlife and their habitats (e.g., Fish and Game Code Section 1600-1616, 1800-1802) and with State Water Resources Control Board implementation of the Clean Water Act, Section 401 Certification regulating discharges to and filling of wetlands and the State's Wetland and Riparian Area Protection Policy.

In addition, the protection of riparian areas is a standard NRCS management practice.¹⁴ The NRCS also provides guidance documents to help growers understand the benefits of riparian areas and standard management practices and conservation methods to protect them. The NRCS lists the multiple benefits of riparian areas, including:

- Riparian areas help control nonpoint source pollution by holding and using nutrients and reducing sediment.
- Riparian areas are often important for the recreation and scenic values. However, because riparian areas are relatively small and occur in conjunction with watercourses, they are vulnerable to severe alteration and damages caused by people.
- Riparian areas supply food, cover, and water for a large diversity of animals and serve as migration routes and stopping points between habitats for a variety of wildlife.
- Trees and grasses in riparian areas stabilize streambanks and reduce floodwater velocity, resulting in reduced downstream flood peaks.
- Alluvial aquifers help maintain the base flow in many rivers in humid areas because of high water tables. In drier climates, streams lose water that can help build up the water table deep beneath the stream.

Issue 1D. Practice Effectiveness and Compliance Reporting (Provision 44(g))

Applicability	Applies to all Tier 1, 2 and 3 farms.
Due Date	Initial Farm Water Quality Management Plan due October 1, 2012. Practice implementation is ongoing.
Purpose	To describe the methods used to verify practice effectiveness and compliance with the 2012 Order and document results in the Farm Water Quality Management Plan. The information is to inform changes to farm water quality practices and how to improve their effectiveness at

¹⁴ NRCS Conservation Practice Standard, Riparian Forest Buffer, Code 391, July 2010.

	preventing or reducing pollution loading. This flexibility and adaptive management approach acknowledges that it will take time for practices to become effective and for growers to be able to demonstrate progress and effectiveness at reducing pollution loading through reporting.
Estimated Range of Costs to Comply (2013)	\$0 – \$3600 per farm (up to 20 hours of consulting services @ \$180/hour)
Factors Affecting Costs to Growers	The requirement to develop and implement the Farm Water Quality Management Plan was included in the 2004 Order and is not a new requirement. Therefore, the costs to comply with similar requirements in the 2012 Order may be limited and are not necessarily “new” costs. Growers who have evaluated and adapted their Farm Plan to continue to make progress towards water quality improvement since the 2004 Order have minimal cost. Growers who did little to comply with the 2004 Order could face relatively high costs, but these are deferred costs due to non-compliance. Growers can also minimize costs through cooperative efforts, which the 2012 Order encourages.
Costs to the public for non-compliance	The degradation of water quality is well documented and severe in irrigated agriculture areas, with major economic impacts on public resources. There is no way for the Water Board or the public to determine if pollutant loading is being reduced without practice effectiveness and compliance reporting.

Provision 44(g) of the 2012 Order requires Tier 1, 2 and 3 growers to describe the methods used to verify practice effectiveness and compliance with the 2012 Order (e.g., water quality sampling, discharge characterization, reductions in pollutant loading) and document results in the Farm Water Quality Management Plan (Farm Plan). Growers are not required to use specific methods or submit the Farm Plan to the Water Board, except upon request.

The development and implementation of the Farm Plan was also a requirement of the 2004 Order¹⁵. The 2004 Order defined a Farm Plan as follows:

Farm Water Quality Management Plan (Farm Plan) - a document that contains, at a minimum, identification of practices that are currently being or will be implemented to address irrigation management, pesticide management, nutrient management and erosion control to protect water quality. Plans will contain a schedule for implementation of practices. Lists of water quality protection practices are available from several sources, including the University of California farm plan template available from the University of California.

As part of the Farm Plan requirement in the 2004 Order, growers were required to submit a biennial management practice checklist.¹⁶ Growers used the management practice checklist “to assess whether practices need to be adjusted or whether increased implementation is needed.”¹⁷ Furthermore, growers were required to use the management practice checklist “to

¹⁵ Order R3-2004-0117, Part 2A(10), 2B, 2C(b).

¹⁶ Order R3-2004-0117, Finding 19, Part 2A(10), 2B, 2C(c).

¹⁷ Order R3-2004-0117, Finding 19.

demonstrate that the grower was implementing the Farm Plan and that the grower has made and is implementing appropriate changes to the Farm Plan”.

Therefore, the type of work required to develop and maintain a Farm Plan and effective management practices is not new. By 2013, the Water Board expects growers to continue to update their Farm Plans, including information to describe how they are evaluating whether or not their water quality management practices are working. Cost of this action through the end of 2013 is estimated to be \$0 – \$3600 per farm, largely depending on compliance with the 2004 Order. At the low end of the cost range, for the growers who have already initiated evaluating their Farm Plan and methods of practice of effectiveness in compliance with the 2004 Order, the costs would be none to very minimal if they chose to do this work themselves. The higher cost is based on an estimated range that it could take a grower up to 20 hours to prepare this description for their farm, and that the grower may use consulting services from qualified personnel at a rate of approximately \$180/hr. Note that this is not the cost of implementing practices, but is the cost to evaluate and report effectiveness, which can be a simple observation or result. Three hours is the estimate of time to simply add existing information on practice effectiveness to the Farm Plan. Twenty hours is the estimate of time for growers who need to collect existing information, such as irrigation records, and who may need to actually collect some limited new information, like nitrate concentration in irrigation water (may purchase and use a kit to measure the water concentration), etc. Growers can reduce costs by completing this work on their own, without the services of a consultant. The costs could also be minimized through cooperative efforts, which the 2012 Order encourages. Growers who have done little or no work to comply with the 2004 Order would likely face greater costs.

As described in Finding 121 of the 2012 Order, the Farm Plan is an effective tool to identify the management practices that have been or will be implemented to protect and improve water quality. Farm Plans also contain a schedule, developed by the grower, for implementation of practices and an evaluation of progress in achieving water quality improvement.

The UCCE, NRCS, and UCANR have assisted growers for decades with tools to identify, implement and evaluate management practices. To provide growers with compliance assistance for the 2004 Order, UCANR developed Farm Water Quality Planning Short Courses and a Farm Plan template.¹⁸ The Farm Plan template was a resource for growers to implement water quality management practices and conduct assessment and evaluation techniques. The Farm Plan template included a detailed section on self-evaluation (page 54) that instructs growers on self-evaluation techniques to determine whether water quality changes were attributed to management practice implementation. The UCANR Farm Plan template recommends simple field measurements and record keeping to evaluate practice effectiveness “inexpensively and with semi-skilled assistance” to obtain site-specific results. In 2011, the Central Coast Agricultural Water Quality Coalition developed an updated Farm Water Quality Planning template, which also included assessment and evaluation techniques to “check the success” of management practice implementation¹⁹. Standard recommended methods to evaluate management practice implementation include the following examples:

- Record-keeping;
- Photo-monitoring;
- Observing presence or absence of runoff;
- Evaluating amount of sediment removed from basins;

¹⁸ Bianchi, M., D. Mountjoy, and A. Jones. 2004. Farm Water Quality Plan. UCANR Publication 8332.

¹⁹ Central Coast Agricultural Water Quality Coalition. 2011. Farm Water Quality Planning Template.

- Effluent flow;
- Water analyses;
- Plant tissue and soil analyses;
- Recording fertilizer use;
- Utilizing crop budgets;
- Percent bare soil along stream banks;
- Percent canopy over stream

To comply with the 2004 Order, many growers have already developed a Farm Plan and implemented management practices with the assistance of UCANR and NRCS technical assistance providers. As was designed, many growers adapted the Farm Plan over time to make continuous progress towards water quality improvement and respond to changes in farm characteristics. Again, the costs to comply with Provision 44(g) in the 2012 Order may be limited and are not necessarily “new” costs. Failure to comply with the 2004 Order is not a defensible argument for “new” costs relative to the same requirement in the 2012 Order.

For growers that have not tracked and recorded information to evaluate practice effectiveness, the costs may be higher for record keeping, visual inspections, or consulting services that will inform practice effectiveness. These costs are difficult to estimate given they depend on the degree of compliance with the 2004 Order, the types and extent of water quality problems an individual farm is addressing (pesticides, nitrate and/or sediment), the numbers and types of practices being implemented at any one farm, the size of the farm, etc.

Growers can comply with this provision through visual inspection and record keeping (e.g., amount of nitrogen fertilizer applied), methods that do not require a specifically qualified or licensed professional, or use of any particular method of analysis or computer models. For example, a grower can evaluate if a change in irrigation practices was effective by visually inspecting whether there is less irrigation runoff. Growers could also keep their own records of the amount of irrigation water applied to document a reduction in the amount of water applied. Alternatively, they could hire an irrigation consultant to measure or model the actual irrigation runoff and other irrigation losses (e.g. percolation). The provision does not dictate how a grower must evaluate and report on practice effectiveness, thereby providing flexibility for growers to choose the least costly methods. For example, one grower in the Central Coast region implemented a nutrient management plan in 2011 and then reported that as a result of the nutrient management plan he reduced his fertilizer use by 50%, which resulted in a significant cost savings to the grower. The cost of simply reporting the result (a 50% reduction in fertilizer use) to the Water Board was not significant.

A grower may also comply using more complex or comprehensive methods, if the grower so chooses (but this provision does not require them to do so). For example, a grower can report an effective nutrient management plan by documenting his reduction in fertilizer use (as noted in the case above), and compare the amount of nitrogen applied in fertilizer and in irrigation water to the nitrogen the crop needs. This requires more effort and includes recording the amount of nitrogen in all fertilizer applications, determining amount of nitrogen in irrigation water by measuring volume of irrigation water applied and analyzing for concentration of nitrate, and measuring the amount of nitrogen in the plant. This method of evaluating effectiveness requires additional personnel hours and lab analyses for the irrigation water and the plant. A grower can also hire an agronomist or certified crop advisor or other qualified professional consultant to measure subsurface nitrogen loading by installing measuring devices at various depths in several locations on a farm several times per year based on the crop season. This last

approach would clearly cost more for personnel time to design monitoring, cost of equipment and its installation, personnel time to manage data collection and evaluate data. Despite these relative increased costs, agricultural industry groups and individual growers have reported implementing these types of actions to evaluate practice effectiveness.^{20 21}

The Water Board cannot estimate the wide range of costs and level of evaluation that growers are electing to implement (ranging from complete non-compliance with the 2004 Order to comprehensive approaches beyond the requirements of the 2012 Order). The variability of farm characteristics and variety of approaches make such an estimate impossible. Furthermore, this provision does not require growers to implement a certain evaluation approach or to demonstrate that practices are fully effective in meeting certain water quality standards by 2013. This provision simply requires that an effectiveness approach be initiated in 2013. Also, the Water Board cannot estimate the level to which growers will cooperate via coalitions or other cooperative groups to lower their costs, as growers and agricultural industry representatives said they wished to do throughout the 2012 Order development process.

We realize that this flexible approach is a double-edged sword. Many growers want flexibility in how they implement practices and evaluate the results, and the 2012 Order provides this flexibility. The flexibility requires growers to evaluate how they will comply with the 2012 Order based on their specific farm characteristics and situation, which takes more time than a prescribed method. However, the flexibility of the 2012 Order has led to extreme interpretations about what is required and what the costs might be. These extreme interpretations and cost estimates are not valid in terms of what the 2012 Order actually requires, and Water Board staff has spent a great deal of time with individual growers trying to correct this misinformation.

This provision is required for consistency with the State’s Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy). The policy directs Water Boards to issue waste discharge requirements or conditional waivers that hold individual growers responsible for implementing and adapting management practices that effectively control nonpoint sources of pollution, such as fertilizers, pesticides and sediment in irrigated agricultural runoff. The NPS Policy specifically requires that any nonpoint source control program include “sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required.” This provision is the only “feedback mechanism” that applies to Tier 1 growers. The requirement for Tier 1 and all growers to update their farm water quality plans annually to include an assessment of practice effectiveness insures “sufficient feedback mechanisms” for purposes stated in the NPS Policy. Tier 2 and Tier 3 growers must comply with additional provisions that ensure “sufficient feedback mechanisms” as discussed below.

Issue 1E. Groundwater Monitoring (Provision 51, MRPs Tiers 1-3, Part 2, Sections A & B)

Applicability	Applies to all Tier 1, 2 and 3 farms with groundwater wells. (precise number of farms unknown)
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²⁰ Presentation by Rio Farms to the State Water Board on May 23, 2012.

²¹ Presentation by the California Strawberry Commission to the Central Coast Water Board on May 4, 2011 (Slides 5-11)

Due Date	First round of sampling September – December 2012 ²² Second round of sampling March – June 2013 ²³
Purpose	To evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for waste discharge and nitrogen loading and exceedance of drinking water standards, and identify priority areas for nutrient management.
Threat to water quality	High
Estimated Range of Costs to Comply (2013)	\$0 if no groundwater wells on farm \$0 if using alternative to submit existing data. \$400 - \$1200 per farm for Tier 1 and Tier 2 \$600 - \$1800 per farm for Tier 3
Factors Affecting Cost to growers	Growers must sample at least one groundwater well, if one exists on farm. Growers must sample all wells used for drinking water. The cost range is largely dependent on the number of wells to be sampled. The provision also allows Tier 1 and Tier 2 growers to submit existing data as an alternative to sampling which is little to no cost. In some cases, multiple growers share a single groundwater well and can share the cost of monitoring and reporting. Growers can also choose to conduct cooperative groundwater monitoring and reporting.
Cost to the public for non-compliance	The health threat to rural home owners with domestic wells in irrigated Ag areas is severe. Groundwater monitoring is critical to determine the extent of the problem and to identify the greatest public health risks. The health costs to the public are undocumented.

Provision 51 of the 2012 Order and MRPs Tiers 1-3, Part 2, Sections A & B require growers to conduct groundwater monitoring of specific parameters and report results for any domestic drinking water wells and the primary irrigation well at a farm, at least two times by 2013, or as an alternative growers can submit existing information that meets specified conditions in lieu of new monitoring and reporting data. This provision applies to the subset of Tier 1, 2 and 3 growers with groundwater wells. The option to submit existing information applies only to Tier 1 and Tier 2 growers.

Sampling groundwater wells for nitrate contamination is a standard industry practice recommended by the University of California Division of Agriculture and Natural Resources (UCANR) as a specific “Management Goal “ identified as a “best economically achievable technology or process” for use in nutrient management²⁴²⁵ and ensuring protection of drinking water beneficial uses. Similarly, the UC Davis Report, Addressing Nitrate in California’s Drinking

²² The original due date for the first round of sampling was September – October 2012. The Executive Officer revised the Monitoring and Reporting Programs to extend the due date to December 2012 to provide additional time, flexibility and cost savings to growers.

²³ The original due date for the second round of sampling was March – April 2013. The Executive Officer revised the Monitoring and Reporting Program to extend the due date to June 2013 to provide additional time, flexibility and cost savings to growers.

²⁴ Pettygrove, G.S., T. Hartz, R. Smith, T. Lockhart, B. Hanson, L. Jackson, and S. Grattan. 2003. Farm Water Quality Plan Fact Sheet 3.4. Nutrient Management Goals and Management Practices for Cool-Season Vegetables. UCANR Publication 8097.

²⁵ NRCS Conservation Practice Standard, Well Water Testing, Code 355, September 2010.

Water²⁶ identifies groundwater well testing as an effective practice to address nitrate in drinking water with relatively low economic cost.

By 2013, the Water Board expects growers to sample one irrigation well and any drinking water wells on their farm (once between Sept-Dec 2012 and once between March-June 2013) and submit the results to the Water Board electronically. If growers have already done this or if there is a local study that shows groundwater is not impacted, growers with Tier 1 and Tier 2 farms can submit that information instead. Growers with Tier 3 farms may have to sample their well(s) one additional time in Sept-Dec. 2013, depending on the timing of the maximum nitrate concentration from the results of previous sampling.

The cost of these actions through the end of 2013, ranges from \$0 - \$1800, depending on the Tier. The range of costs depends on if the grower is submitting existing data (no collection cost), or if a grower is collecting data from one or more wells. In general, the cost is \$200/well. The source of the cost estimate per well is the State Water Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). The Program reported a cost of approximately \$190/well to sample and analyze for the parameters required by this provision. The value of \$200/well was used to simplify the estimates (rounded up from \$190). This cost estimate is actually higher than the prices currently being offered to growers in the Central Coast Region by various laboratories who conduct complete groundwater well water quality sampling, analysis and reporting services. The following labs are currently advertising the following costs to sample, analyze and report for one well: Fruit Grower's Lab- \$160, Monterey Bay Analytical Services- \$180, Oilfield Environmental and Compliance, Inc.- \$180, Dellavalle Laboratory, Inc.- \$155.

Finally, the provision allows growers to elect cooperative monitoring and prepare a cooperative monitoring program by March 2013, in lieu of individual well monitoring. This may significantly reduce the costs to these growers between now and December 2013, although it remains unknown if and how much growers must spend for development of the cooperative monitoring program. We cannot estimate the cost for such monitoring since the cooperative monitoring programs do not yet exist. As of August 1, 2012, 1,353 farms elected to conduct cooperative groundwater monitoring. The programs must be proposed by March 15, 2013 and the costs will depend on the numbers of growers in a group, the number of representative wells and the timing of the sampling. As an example, assume ten growers each have two wells to sample individually (20 wells), and they alternatively conduct an adequately representative cooperative monitoring program that includes only 15 wells for the area, and they do one round of sampling by December 2013, and share the cost of sampling the reduced number of wells. In this case their costs will each be \$200/well for 15 wells divided amongst 10 growers for a cost of \$300 each. If they each had to sample their two wells individually for two sampling events before October 1, 2013, as required by the 2012 Order, at a cost of \$200/well, they would each have to spend \$800. While this represents a cost savings for the actual monitoring, the cost of developing a cooperative monitoring program is unknown. In any case, growers have the option to elect cooperative or individual groundwater monitoring, as they requested.

In response to comments during the 2012 Order development process and direction from the Water Board members, staff reduced the groundwater monitoring requirements in the proposed

²⁶ <http://groundwaternitrate.ucdavis.edu/>

Harter, T. et al. UC Davis Groundwater Nitrate Project, Implementation of Senate Bill X2 1 Prepared for California State Water Resources Control Board January 2012. Addressing Nitrate in California's Drinking Water.

draft order, and the Central Coast Water Board further reduced the requirements to make the monitoring less costly at the adoption hearing. Those changes included removing the requirement to have a registered professional (e.g., geologist) collect the samples, allowing alternative information in lieu of new data, and the option to implement cooperative groundwater monitoring. Further, after adoption of the 2012 Order, the Executive Officer modified the monitoring and reporting program to extend the compliance date to elect cooperative monitoring to allow more time for growers to evaluate this option, extended the specified window of time for growers to sample from 60 days to 120 days, and removed the requirement to measure depth to groundwater. All these changes reduced costs to the grower.

This provision also provides information consistent with the NPS Policy’s requirement to include “sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required.”

Issue 1F. Annual Compliance Form Reporting (Provision 67, MRPs Tiers 2-3, Part 3)

Applicability	Applies to all Tier 2 and 3 farms.
Due Date	October 1, 2012 October 1, 2013 (annually thereafter)
Purpose	To evaluate and document progress towards compliance with the 2012 Order.
Estimated Range of Costs to Comply (2013)	\$0 – \$1440 per farm (up to 8 hours of consulting services at \$180/hour)
Factors Affecting Cost	This requirement to submit an Annual Compliance Form built upon similar requirements in the previous 2004 Order. Therefore, the costs to comply with similar requirements in the 2012 Order may be limited and are not necessarily “new” costs. Growers will only incur new costs if they have done little to comply with the 2004 Order, or have newly enrolled in the 2012 Order and have not implemented actions to comply with the 2012 order. In addition, the 2012 Order requires general estimates regarding discharge characteristics and does not require specific measurements, which provides additional flexibility to growers to minimize costs.

Provision 67 requires growers with Tier 2 and Tier 3 farms to submit an Annual Compliance Form²⁷ electronically. The purpose of the Annual Compliance Form is to provide up-to-date information to the Central Coast Water Board to evaluate progress towards compliance with the 2012 Order, including implementation of management practices, treatment or control measures, or changes in farming practices.

Provision 67 of the 2012 Order builds upon the requirements in the previous 2004 Order to submit a farm water quality management practices checklist²⁸. The purpose of the management practice checklist was to allow growers to identify management practices implemented and planned, and to assess whether practices need to be adjusted or increased based on water

²⁷ Draft Annual Compliance Form (August 2012)

²⁸ Farm Water Quality Management Practices Form (2006)

quality issues.²⁹ As required by the 2004 Order, approximately 1040 agricultural operations (with multiple farms) submitted a management practice checklist in January 2007.

By 2013, the Water Board expects growers with Tier 2 and Tier 3 farms to report information (general discharge characteristics and management practice information) from their Farm Plan in an Annual Compliance Form submitted to the Water Board electronically in October 2012 and October 2013. Growers would do this by answering a series of questions about their farm, using dropdown selections, and submitting the form electronically.

Cost of this action through the end of 2013 is estimated to be \$0 – \$1440 per farm, largely depending on how much a grower has already done to comply with the 2004 Order. At the low end of the cost range, for the growers who have knowledge and/or record keeping related to farm discharge characteristics and management practice implementation in compliance with the 2004 Order, the costs would be none to very minimal if they chose to do this work themselves. The higher cost is based on an estimated range that it will take a grower up to eight hours to gather information from their Farm Plan and fill out and submit the Annual Compliance Form. The grower or his farm employee should be able to do this at minimal cost, however the cost estimate includes costs if the grower requires the use of consulting services from qualified personnel at a rate of approximately \$180/hr.

The 2012 Order requires the following type of information to be reported in the Annual Compliance Form by October 2012 and October 2013:

- Information regarding type and characteristics of discharge (e.g., estimated number of discharge points, estimated flow/volume, estimated number of tailwater days);
- Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
- Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts;
- Nitrate concentration of irrigation water;
- Identification of the use of fertigation or chemigation and proof of proper backflow prevention devices;
- Nitrate Loading Risk factors in Table 4 or Nitrate Groundwater Pollution Hazard Index input and Nitrate Loading Risk level;
- Proof of approved California Department of Fish and Game (CDFG) Streambed Alteration Agreement, as required by CDFG for any work proposed within the bed, bank or channel of a lake or stream, including riparian areas, that has the potential to result in erosion and discharge of waste.
- A subset of Tier 2 and 3 farms that contain or are adjacent to a waterbody impaired for temperature, turbidity or sediment must also report if they have completed photo monitoring.

This type of reporting is not entirely new. The 2004 Order also required the following:

All applicants must submit the following information as part of their Notice of Intent (NOI) to enroll:

- *Completed application form, including location of the operation and identification of responsible parties (owners/operators)*

- Copy of map of operation (map should be the same as the one submitted to the County Agricultural Commissioner for Pesticide Use Reporting, or equivalent)
- Completed management practice checklist/self assessment form
- Certificates of attendance at Regional Board-approved farm water quality education courses, if applicable
- Statement of farm water quality plan completion, if applicable
- Election for cooperative or individual monitoring

The 2004 Order also included the following reporting requirements:

Tier 1 Qualifications and Reporting Requirements

Tier 1 conditional waivers will be five years in length. To qualify for a Tier 1 conditional waiver, Dischargers must do the following:

- complete 15 hours of Regional Board-approved farm water quality education by the enrollment deadline
- complete a Farm Plan by the enrollment deadline
- provide a biennial practice implementation checklist to the Regional Board demonstrating that the Discharger is implementing the Farm Plan, or that the Discharger has made and is implementing appropriate changes to the Farm Plan
- perform individual water quality monitoring or participate in cooperative water quality monitoring

Tier 2 Qualifications and Reporting Requirements

Tier 2 conditional waivers will be one year in length, renewable up to three years. To qualify for a Tier 2 conditional waiver, operations must do the following:

- complete at least 5 hours of Regional Board-approved water quality education per year, up to a total of at least 15 hours (the first 5 hours may be completed after enrollment)
- complete a Farm Plan within three years of the enrollment deadline
- provide annual practice implementation checklists identifying currently implemented and planned management practices and progress reports on completion of requirements to the Regional Board
- perform individual water quality monitoring or participate in cooperative water quality monitoring

This provision provides information consistent with the NPS Policy’s requirement to include “sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required.”

Issue 1G. Determination of Nitrate Loading Risk Factors, Determination of Total Nitrogen Applied (Provision 68, MRPs Tiers 2-3, Part 2, Section C)

Applicability	<p>Determination of Nitrate Loading Risk applies to all Tier 2 and 3 farms.</p> <p>Determination of Total Nitrogen Applied applies to the subset of Tier 2 and Tier 3 farms with a HIGH Nitrate Loading Risk.</p>
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	(Precise number of farms unknown).
Due Date	Determination of Nitrate Loading Risk October 1, 2012 Determination of Total Nitrogen Applied Record keeping needed for October – December 2013
Purpose	To measure relative risk of loading nitrate to groundwater based on specific criteria: a) Nitrate Hazard Index Rating by Crop Type, b) Irrigation System Type, c) Irrigation Water Nitrate Concentration and d) Soil Type.
Estimated Range of Costs to Comply (2013)	\$0 - \$720 per farm. (up to 4 hours of consulting services at \$180/hour)
Factors Affecting Cost	Existing tools to evaluate nitrate loading risk are readily available and easy to use. In general, growers should not have to hire consulting services to complete this task. In addition, evaluating nitrate loading risk and associated nutrient budgeting and record keeping practices are standard industry practices and many growers are already implementing these types of practices. Thus, the costs may not be “new costs” for many growers.
Costs to the public for non-compliance	The degradation of water quality is well documented and severe in irrigated agriculture areas, with major economic impacts on public resources. There is no way for the Water Board or the public to determine progress for farms with a greater risk of pollutant loading without risk analysis and compliance reporting.

Provision 68 of the 2012 Order requires Tier 2 and Tier 3 growers to evaluate the nitrate loading risk for their individual farm, using one of two specific methods: UC Water Resources Institute’s Groundwater Pollution Nitrate Hazard Index or a similar method described in the 2012 ORder. Both methods measure the relative risk of loading nitrate to groundwater based on the following criteria: a) Nitrate Hazard Index Rating by Crop Type, b) Irrigation System Type, c) Irrigation Water Nitrate Concentration and d) Soil Type.

By October 1, 2012, the Water Board expects that growers with Tier 2 and Tier 3 farms will go to the UC Water Resources Institute’s Online Tool to calculate their Nitrate Hazard Index for their farm. To do this, growers would answer four questions with dropdown selections about crop type, soil type, irrigation type, and deep rip. As an alternative, growers can also use an alternative method that includes irrigation water nitrate concentration, but does not include soil type.

By December 2013, the Water Board expects that growers with Tier 2 and Tier 3 farms with a resulting high nitrate loading risk will have nitrogen application records for October – December 2013. The provision does not specify how to maintain fertilizer application data, however growers may choose to record on paper, or into a standard spreadsheet or software developed by a technical service provider or the private industry. Since amount of record keeping during this time period is limited, costs are expected to be minimal.

The use of tools, such as the Groundwater Pollution Nitrate Hazard Index to evaluate nitrate loading risk and implement nutrient budgeting practices is a long-standing, standard industry

practice to optimize nutrient efficiency and minimize losses. The practice to record and budget nitrogen fertilizer application is a practice widely recommended by agronomists and crop specialists such as the UCCE, UCANR, NRCS, and agricultural industry groups such as the International Plan Nutrition Institute (IPNI) and Western Plant Health Association (WPHA). Recording fertilizer inputs and evaluating potential for over fertilization and nitrogen loss is a standard industry practice recommended by the University of California Division of Agriculture and Natural Resources (UCANR) as a specific “Management Goal “ and is identified as “the best economically achievable technology or process for limiting the movement of nutrients to surface water and groundwater.

The UC Davis Report, Addressing Nitrate in California’s Drinking Water³⁰ also identifies fertilizer nitrogen record keeping as an effective practice with low economic costs. In addition, many growers already employ this and similar related practices to optimize fertilizer application and minimize losses. Furthermore, during the process to renew the 2012 Order, the “draft agriculture’s alternative proposal”³¹ submitted by agricultural representatives in December 2010 included the same nitrate loading risk evaluation tools as now required by the 2012 Order.

The cost of this action through the end of 2013 is estimated to be \$0 - \$720. The Water Board estimates that it should take approximately four hours to use the available methods to determine nitrate loading risk and maintain nitrogen application records. Since evaluating nitrate loading risk and associated nutrient budgeting and record keeping practices are standard industry practices, many growers are already implementing these types of practices. Thus, the costs are not “new costs” for growers implementing this practice to comply with the 2004 Order. In addition, existing tools to evaluate nitrate loading risk are readily available and easy to use so growers should not have to hire consulting services to complete this task and should be able to complete this task at no to minimal cost. The high end of the cost estimate takes into the account the case where a grower chooses to use of consulting services (up to four hours) from qualified personnel at a rate of approximately \$180/hr. However, the 2012 Order does not require any specific qualifications to evaluate nitrate loading risk method or to determine total nitrogen applied.

These simpler loading risk methods were selected deliberately to avoid the potentially high costs of using more complex site assessments to determine loading risk or actual loading. The Central Coast Water Board also considered this risk screening to avoid establishing requirements for nutrient management practices/pollution reduction measures too broadly, such as for all Tier 2 and Tier 3 growers. With this screening, the requirements only apply to the subset of growers likely or actually discharging the highest levels of nitrate to groundwater.

This provision provides information consistent with the NPS Policy’s requirement to include “sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required.” Reporting total nitrogen applied specifically provides a feedback mechanism to

³⁰ <http://groundwaternitrate.ucdavis.edu/>

Harter, T. et al. UC Davis Groundwater Nitrate Project, Implementation of Senate Bill X2 1 Prepared for California State Water Resources Control Board January 2012. Addressing Nitrate in California’s Drinking Water.

³¹ December 3, 2010 Draft Agriculture’s Alternative Proposal for the Regulation of Discharges from Irrigated Lands.

indicate reduction in loading or improved management practice in terms of nitrogen source control to protect groundwater used for drinking water from nitrate contamination.

Issue 1H: Photo Monitoring (Provision 69, MRPs Tiers 2-3, Part 4)

Applicability	Subset of Tier 2 and 3 growers with farms that contain or are adjacent to a surface waterbody impaired by sediment, turbidity or temperature (about 534 growers).
Due Date	October 1, 2012
Purpose	To document condition of streams, riparian, and wetland area habitat and the presence of bare soil within the riparian habitat area that is vulnerable to erosion; to document management practices to prevent sediment and other waste discharges directly to riparian and wetland areas
Estimated Range of Costs to Comply (2013)	\$0 - \$1440 per half-mile of stream per farm. (up to 8 hours of consulting services at \$180/hour)
Factors Affecting Cost	Growers can likely conduct photo monitoring without hiring a professional because no special equipment, training or qualifications are necessary to take or document the photos. Costs will vary for farms with more or less than half-mile of stream per farm. Higher cost assumes that growers use the services of a qualified professional.
Costs to the public for non-compliance	The degradation of water quality is well documented and severe in irrigated agriculture areas, with major economic impacts on public resources. Agriculture near surface waterbodies can lead to removal or reduction of riparian vegetation and the impairment of its ecological functions. There is no way for the Water Board or the public to determine progress and if pollutant loading is being reduced without compliance monitoring and reporting. Economic studies have estimated the value of riparian habitat and the environmental services such habitat provides in both qualitative and quantitative terms.

Provision 67 of the 2012 Order requires a subset of Tier 2 and Tier 3 farms that contain or are adjacent to a surface waterbody impaired by sediment, turbidity or temperature (about 534 farms) to conduct photo monitoring to document condition of streams, riparian, and wetland area habitat and the presence of bare soil within the riparian habitat area that is vulnerable to erosion; and to document management practices to prevent sediment and other waste discharges directly to riparian and wetland areas

By October 1, 2012, the Water Board expects this subset of Tier 2 and Tier 3 growers to take a minimum of 5 photos (for each half mile length) to document the condition of streams, riparian, and wetland area, and any management practices implemented to prevent the discharge of waste. Growers must use protocols approved by the Executive Officer and maintain photos in the Farm Plan

The cost of actions to comply with this provision through the end of 2013 is estimated to be approximately \$0 - \$1440 per farm. This cost will vary for farms with more or less than half-mile of stream per farm. At the low end, growers or their farm personnel can conduct photo monitoring without assistance when conducting other routine on-farm activities. No special

equipment is required other than a standard digital camera. The estimated costs are based upon growers being able to complete the photo monitoring in less than one day (8 hours). The high end of the cost estimate takes into the account the case where a grower chooses to use the consulting services of qualified personnel at a rate of approximately \$180/hr. However, the 2012 Order does not require any specific qualifications to conduct photo monitoring.

This provision provides information consistent with the NPS Policy’s requirement to include “sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required.”

Issue 11: Individual surface water discharge monitoring and reporting (Provision 72 and 73, MRPs Tier 3, Part 5)

Applicability	Subset of Tier 3 growers that have a surface water discharge (about 66 farms).
Due Date	Initiate sampling by October 1, 2013.
Purpose	To evaluate discharges of waste to surface water from the farms with greatest potential to impact water quality.
Estimated Range of Costs to Comply (2013)	\$0 if no discharge \$6,301 to \$8551 per farm, if discharge to surface water.
Factors Affecting Cost	Costs depend on the size and complexity of the individual farm (e.g. number of sampling points). It is possible for the costs to exceed the range above if numerous additional sampling points are necessary. However, the 2012 Order allows the grower to propose alternative approaches or propose cooperative monitoring to significantly lower costs relative to the estimate above.
Costs to the public for non-compliance	The degradation of water quality is well documented and severe in irrigated agriculture areas, with major economic impacts on public resources. There is no way for the Water Board or the public to identify and follow-up on sources of pollution without discharge monitoring from farms using the chemicals causing the pollution. In addition, there is no way to determine progress and if pollutant loading is being reduced without compliance monitoring and reporting.

Provision 72 and 73 of the 2012 Order require Tier 3 Dischargers that have a surface water discharge to initiate individual surface water discharge monitoring by October 1, 2013.

By March 15, 2013, the Water Board expects growers with Tier 3 farms that have a discharge to a surface water body and/or an irrigation runoff containment structure to prepare a site-specific Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP), by adding site-specific information into a template prepared in advance by the Water Board.

By October 1, 2013, the Water Board expects growers with Tier 3 farms that have a discharge to surface water to initiate sampling per an approved SAP and QAPP.

The total estimated cost of the actions to comply with this provision by 2013 is estimated to be \$6,301 to \$8551 per farm. The total estimated cost is comprised of preparing a SAP and QAPP, plus the costs of initiating monitoring. The cost of preparing a QAPP is estimated to be \$750 - \$3000. This cost range assumes a ready-to-use template will be provided by the Central Coast Water Board in advance of the October 1, 2013 compliance date, which may minimize the need to hire consulting services. Growers will fill in site-specific information such as locations and numbers of sites to be sampled. Central Coast Water Board staff with expertise in designing and implementing monitoring programs (Karen Worcester, personal communication Aug. 14, 2012) estimates the time to fill in a template will be from 5 to 20 hours and the approximate cost to be \$150 per hour for a qualified professional. The costs to initiate monitoring are estimated to cost \$5,551. The main costs are due to the type of laboratory analysis and the number of samples required by the MRP. The \$5551 amount assumes one tailwater discharge point, one stormwater discharge point, 3 sampling events: 1 without pesticides/toxicity, 2 with pesticides/toxicity. Based on Central Coast Water Board's analysis of eNOI data and individual farm characteristics (location relative to drainage area of impaired waterbodies), nearly all farms that are subject to the individual discharge monitoring requirements are less than 500 acres. Thus, the cost estimate assumes the lower frequency monitoring. However, the 2012 Order allows the grower to propose alternative approaches or propose cooperative monitoring to significantly lower costs relative to the estimate above.

These cost estimates were documented at page 34, 35, 37 and 38, Appendix F, Staff report for Board Meeting Item 14, March 2011, Central Coast Water Board. The monitoring costs have been re-estimated here to account for changes the Central Coast Water Board made when it adopted the 2012 Order.

Finally, this provision provides information consistent with the NPS Policy's requirement to include "sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required." This requirement is consistent with monitoring and reporting requirements pursuant to the California Water Code and contained in permits issued by the Regional Water Quality Control Boards for all other permitted or regulated facilities who are, or are potentially, loading pollutants to surface waters and groundwater. Such facilities include municipal and industrial wastewater treatment plants, industrial facility groundwater cleanup operations, and industrial and construction facilities with stormwater runoff.

Issue 2: Benefit to the Environment or Irrigated Lands Regulatory Program

The State Water Board instructed parties to explain the benefit to the environment or to the irrigated lands regulatory program that will accrue from compliance with the following provisions prior to the end of 2013.

Response 2:

General Statements About Benefits of Provisions Listed Below

Since the issuance of the initial 2004 Order, the Central Coast Water Board compiled substantial additional empirical data demonstrating severe groundwater and surface water pollution caused in large part by irrigated agricultural practices, including the following:

- Large-scale degradation of drinking water aquifers due to nitrate from fertilizer use, and a corresponding increasing risk to public health in areas with intensive irrigated agriculture. In some areas, the Central Coast Water Board record includes data that indicates shallow groundwater is contaminated with nitrate at concentrations up to 15 times the drinking water standard, and there are domestic wells in the area. The health threat to domestic well owners is severe.
- Widespread surface water and sediment toxicity due to pesticides.
- Widespread degradation and loss of riparian and wetland habitat.
- Widespread degradation of surface waters due to nitrate.

The data show that these problems are severe and getting worse, especially with respect to degradation of drinking water aquifers and the resulting threat to public health in rural areas. The Central Coast Water Board adopted the 2012 Order to require measurable pollutant load reductions to surface water and groundwater, while allowing growers the necessary flexibility to achieve compliance and resolve the severe water quality problems in the agricultural areas of the Central Coast Region. The requirements in the 2012 Order are scaled based on threat to water quality, as with all other Water Board programs. The majority of farmers in the Central Coast Region are in Tier 1, with the least strict requirements. The greatest amount of acreage is in Tier 2 which has requirements similar requirements as the 2004 Order plus a few additional requirements for a subset of growers.

The 2012 Order built on and improved the requirements in the 2004 Order (in direct response to input from the public and Board members at public workshops) to better protect water quality by adding monitoring and reporting of specific indicators of pollution load reduction or improved waste discharge controls. With these provisions, the Central Coast Water Board, the public and the growers will be able to track implementation effectiveness and improvement at a site level and shorter time-frames within the five-year life of the Order (e.g. annually).

As discussed previously, these provisions are required for consistency with the NPS Policy. The policy directs Water Boards to issue waste discharge requirements or conditional waivers that hold individual growers responsible for implementing and adapting management practices that effectively control nonpoint sources of pollution, such as fertilizers, pesticides and sediment in irrigated agricultural runoff. The policy specifically requires that any nonpoint source control program include “sufficient feedback mechanisms so that the Regional Water Quality Control Board, the dischargers and the public can determine whether the program is achieving its stated purpose(s), or whether additional or different MPs [management practices] or other actions are required.” These provisions provide the “feedback mechanisms” for purposes stated in the NPS Policy.

These provisions are also necessary to comply with the State Water Board’s Environmental Justice Goal, which is to “*Integrate Environmental Justice considerations into the development, adoption, implementation and enforcement of Board decisions, regulations and policies.*”

These provisions compel improved waste discharge control in two primary ways. First, they improve the ability and efficiency of the Central Coast Water Board to prioritize farms, geographic areas, water quality problems, and types of management practices for appropriate

follow up activities to evaluate compliance and reduce discharges and protect water quality (e.g., provide technical assistance, require monitoring, conduct inspections). This is especially critical in areas where discharges affect drinking water sources and threaten public health. Targeted follow up activities will result in implementation of more effective management practices or waste discharge control, thereby reducing pollution loading and fulfilling obligation under the California Water Code to verify the adequacy and effectiveness of the Order, as it is a Waiver of Waste Discharge Requirements. Additionally, these provisions allow increased transparency because the Central Coast Water Board can evaluate the level of compliance or implementation of management practices to control waste discharges or indicators of pollution reduction and report that information to the public.

The second way these provisions compel improved waste discharge control is they provide feedback and indicators of effectiveness to the growers who are required to monitor, report and implement management practices. By adding provisions for monitoring and reporting of the highest priority pollutants, growers can better adapt and improve their implementation efforts or management practices to reduce pollution loading, specifically targeted at nitrate discharges to groundwater used for drinking water supply, and pesticides and toxicity impairing surface waters that support aquatic life.

These provisions are necessary to reduce current and on-going water quality impacts and threats to drinking water and public health from continuous and intensive fertilizer applications that leach nitrate to groundwater, to sensitive aquatic habitats in streams and estuaries from continuous and intensive discharges of pesticides causing toxicity and to streams from erosion and sediment discharges caused by on-farm soil exposure and destabilization of streambanks in riparian areas.

If the provisions are stayed, the management practices needed to be implemented to protect water quality will be delayed and the Central Coast Water Board will not get the information needed to evaluate compliance with the Basin Plan and take action to better protect water quality and beneficial uses, especially drinking water

Specific Benefits for Issues Listed Below

Annual Compliance Form Reporting (Provision 67, MRPs Tiers 2-3, Part 3)

Provision 67 of the 2012 Order requires growers with Tier 2 and Tier 3 farms to submit an Annual Compliance Form electronically. The very real benefit of this requirement is that it is critical to managing the Central Coast Water Board's Irrigated Lands program. The annual compliance form is a simple, straightforward mechanism that provides the Water Board staff the ability to manage the overall program. It is physically impossible to provide regulatory oversight for 4000 farming operations on an individual, as is the case with many other Water Board programs. The Water Boards increasingly use reporting mechanisms like the annual compliance form to effectively manage large numbers of dischargers (CIWQS, GeoTracker, GAMA, SWAMP, etc.). That is, the Water Boards manage databases, and use them to make critical decisions. The issue here is whether the Central Coast Water Board will have an effectively managed program or not. Without this simple tool, the program is not manageable.

The Annual Compliance Form is required for approximately 1656 farms located in close proximity to the most impaired areas of the region, producing crop types with a relatively higher risk of loading nitrate to groundwater, using chemicals known to be the source of specific toxicity

in the Central Coast Region, and/or in some cases discharging pollutants directly to an impaired waterbody. The purpose of the Annual Compliance Form is for growers to provide up-to-date information to the Central Coast Water Board to evaluate and prioritize agricultural discharges based on the reporting of specific discharge characteristics, to evaluate relative threat to water quality, to evaluate status of implementation at various scales (farm scale, watershed scale, and local/regional scale) and evaluate progress towards compliance with the 2012 Order. The Annual Compliance Form information allows growers to report out on beneficial actions and positive progress towards water quality improvement. In addition, the Annual Compliance Form information allows growers and the Central Coast Water Board to identify areas and conduct follow-up where additional progress is necessary.

This provision compels implementation in two ways as discussed above. First, growers are more likely and more able to improve and demonstrate implementation based on feedback from monitoring and reporting on their activities, indicators of effectiveness, and areas for improvement. Second, the Central Coast Water Board will have more specific information to prioritize compliance assistance to target highest priority water quality problems and to characterize and report to the public on the level of implementation and water quality improvement achieved. Over time, the Central Coast Water Board will be able to better target follow up activities to result in implementation of more management practices or waste discharge control, thereby reducing pollution loading and fulfilling obligation under the California Water Code to verify the adequacy and effectiveness of the Order.

Additionally, the Central Coast Water Board will be able to use the reported information efficiently, at relatively low cost to the grower, as it will be reported to the Water Board's online GeoTracker data management system that can easily be searched, generate reports, etc. Growers can also update specific information in real-time whenever necessary without resubmitting entire documents. This will provide a significant improvement in reporting and tracking the effectiveness of individual grower compliance, as well as of the conditions of the Order and the regulatory program. The 2004 Order did not include provisions for groundwater protection, groundwater monitoring, monitoring or reporting information with which to evaluate the level of compliance or implementation of management practices to control waste discharges, or useful indicators of pollution reduction on a short-term basis. The information that will be reported annual on the compliance form will fill these gaps. Given the persistent, widespread and severe water quality problems from nitrate, pesticide and sediment discharges from irrigated agricultural runoff in the Central Coast region, the Central Coast Water Board needs this information to address the highest water quality priorities.

For example, the Annual Compliance Form enables the Water Board to identify a specific subset of farms that have an increased nitrate loading risk and are in close proximity to more vulnerable private domestic drinking water wells, and evaluate indicators of pollutant loading reduction where it is most needed. In this case, the Annual Compliance Form can provide quick answers relevant to advancing water quality protection: Do the higher nitrate loading risk farm have backflow prevention? Is the farm next to an impaired water body? Is the farm next to an impacted groundwater well or vulnerable area? What are the discharge characteristics – infrequent low volume flow or frequent high volume flow? Has the grower reduced the volume of runoff? Is the grower using nutrient budgeting? What other best management practices is the grower implementing to protect water quality? The answers to these types of questions allows the Water Board to focus follow-up in specific areas or with specific farms.

Without provisions to require growers to submit the Annual Compliance Form there are no means for growers to report progress towards water quality improvement to the Water Board.

Similarly, there is no efficient means for the Water Board to distinguish and prioritize farms based on discharge characteristics, level of threat to water quality, or status of management practice implementation and other efforts to protect water quality. Water Board staff will have to rely primarily on complaints and inspections to evaluate potential problems. Given that the Agricultural Regulatory Program regulates nearly 4000 farms and approximately 435,000 acres, relying on complaints and inspections is neither efficient nor effective given the staff resources allocated. In addition, it is also not sufficient given the severity and scale of water quality problems in agricultural areas. The Water Board must prioritize available resources toward the highest priorities. The Annual Compliance Form is a significant improvement toward implementing the regulatory program and a critical Water Board tool for efficient and effective prioritization and follow-up to maximize water quality protection and improvement.

Determination of nitrate loading risk factors, determination of total nitrogen applied (Provision 68, MRPs Tiers 2-3, Part 2, Section C)

Provision 68 of the 2012 Order requires Tier 2 and Tier 3 growers to evaluate the nitrate loading risk for their individual farm, using one of two specific methods. Nitrate loading risk is a measure of the relative risk of loading nitrate to groundwater based on the following criteria a) Nitrate Hazard Index Rating by Crop Type, b) Irrigation System Type, c) Irrigation Water Nitrate Concentration and d) Soil Type.

The nitrate loading risk factor and total nitrogen applied are two of the most important data that can be obtained. These data, reported over time, are critical to determine whether pollutant loading is decreasing. The monitoring and reporting of these data also raise awareness and change behavior.

This provision addresses the Central Coast Region's highest priority water quality problem, nitrate in drinking water that is impacting and threatening public health. The UC Davis Report, Addressing Nitrate in California's Drinking Water found that agricultural fertilizers and animal wastes applied to cropland are by far the largest regional sources of nitrate in groundwater. Furthermore, the report found that nitrogen use reporting is an important and effective tool with minimal economic cost, and also stated that future Regional Board actions to define areas at risk for nitrate contamination is essential for both safe drinking water and for addressing groundwater degradation also with minimal economic cost. The report also shows that the loading of nitrate to groundwater in our Region is double the amount that staff estimated in its report to the Central Coast Water Board. The report also documented the impacts to rural communities whose drinking water is severely impacted by the agricultural discharges of nitrate to groundwater (nitrate). Evaluating farm-level nitrate loading risk is critical in areas where drinking water is vulnerable.

Evaluating farm-level nitrate loading risk enables the quick identification of farms that have an increased threat of loading nitrate to groundwater. This allows the Central Coast Water Board to quickly screen, prioritize, and focus follow up actions (such as increased monitoring and/or reporting requirements, investigations, issuing health warnings, etc.) on a specific subset of agricultural operations – without imposing similar requirements on lower risk farms. For example, requiring growers to evaluate nitrate loading risk allows the Water Board to focus additional requirements to report total nitrogen applied on a very specific subset of farms for which such evaluations are relevant and necessary given the threat to water quality.

Nitrate loading risk serves as an important screening tool to determine which farms require more intensive and accurate loading management, evaluations and reporting. The methods required in the 2012 Order for determining nitrate loading risk are standard industry practice, and simple and inexpensive to apply. Therefore, they are beneficial as a short term investment to assess risk to insure that the Central Coast Water Board only imposes additional conditions for management practices/pollution reduction measures, and specifically reporting of total nitrogen applied, on those likely or actually discharging the greatest amounts of nitrate to groundwater and not to all growers. The Central Coast Water Board specifically identified the need to prioritize those farms most likely or actually loading nitrate to groundwater in order to most effectively protect drinking water polluted by nitrate. This is a necessary first step in reducing current and on-going water quality impacts threatening drinking water and public health from continuous and intensive fertilizer applications that leach nitrate to groundwater.

In the process to update the 2012 Order, UCCE agronomists and crop specialists have indicated to Water Board staff on numerous occasions that the single most important piece of water quality information to track is total nitrogen applied. In the absence of direct discharge monitoring to groundwater below the root-zone, it is the primary indicator of nitrate loading to groundwater. Tracking total nitrogen applied will indicate reduction in nitrogen use and nitrate loading, so the Central Coast Water Board can measure progress towards water quality improvement. This requirement will only apply to a subset of growers, those with the highest risk for loading nitrate to groundwater (see explanation of nitrate loading risk factors below). While total nitrogen applied is an indirect measure of actual nitrate leaching to groundwater, it was selected as a monitoring and reporting parameter because it is a cost-effective way to evaluate source or load reductions, compared to monitoring or using computer models to measure nitrate leaching and loading in soil and groundwater. Total nitrogen applied provides the Central Coast Water Board with information to prioritize farms, geographic areas and groundwater basins for targeted compliance assistance, additional monitoring, inspections, etc. in order to more effectively control waste discharges of nitrate to groundwater and inform water providers and the public of water quality risks to and conditions of their drinking water. Growers will be more accountable for their waste discharges and better able to adapt their management practices by monitoring and reporting this quantitative indicator of effectiveness of their nutrient management practices; this should lead to better nitrate source control and loading reductions.

Individual surface water discharge monitoring and reporting (Provisions 72 and 73, MRP Tier 3, Part 5)

Water Code section 13269 authorizes the Water Boards to conditionally waive the requirement to obtain waste discharge requirements. This section of the Water Code was significantly amended in 2000 and now specifies that any waivers in effect on January 1, 2000 will terminate by operation of law unless renewed. Renewed conditional waivers as of 2000 must be consistent with the applicable state or regional board water quality control plans and be in the public interest. The conditional waivers must also include, but are not limited to, the performance of individual, group, or watershed-based monitoring. The monitoring requirements must be designed to, among other requirements, verify the adequacy and effectiveness of the waiver's conditions. For many years the State Water Board, the Central Coast Water Board, and various entities, including agricultural dischargers, have been monitoring surface water in the Central Coast Region. This monitoring has provided significant information about the general quality of waters in the Region. However, agricultural dischargers have not been required, as are most other dischargers, to monitor individual discharges to ascertain the quality of the discharge and the impact on water quality. Now, 12 years after the significant

amendments to Water Code section 13269, the 2012 Order requires very limited individual monitoring of discharges from the highest risk farms to the most impaired water bodies in the Region.

Provision 72 and 73 of the 2012 Order requires Tier 3 growers who discharge to a surface water body to initiate individual surface water discharge monitoring by October 1, 2013. This provision will benefit the environment and the regulatory program because the information will allow the Central Coast Water Board and growers to prioritize and implement actions where they are most needed. This is not a cause-and-effect monitoring program designed to determine changes in water quality based on changes in management practices, although growers can pursue that type of monitoring effort in lieu of this requirement if they wish. This sampling requirement is to determine presence and absence of critical water quality parameters such as toxicity, pesticides, and nitrate so that the Water Board and growers can prioritize and follow up on the greatest threats to public health and the environment.

The benefit to the environment and the public is the action to reduce the highest risks. Without the information, the Water Board will not identify the greatest risks and take action to reduce the risk. Monitoring, reporting, and following up on the highest risk cases is a fundamental principle of all Water Board programs.

This requirement applies to a subset of farms in Tier 3 (about 66 farms out of 110 Tier 3 farms) discharging to surface waters already impaired by nutrients, toxicity, pesticides and sediment from irrigated agricultural runoff. This provision only applies to the subset of the highest risk growers in Tier 3 that use fertilizers and pesticides most widely or intensively, are near impaired surface water or groundwater and have irrigation and stormwater runoff. The information will allow the Central Coast Water Board to (1) characterize sources of waste discharges, determine pollution load reductions, determine compliance with the conditions, and prioritize growers for follow up (e.g., inspections), and (2) verify the adequacy and effectiveness of the conditions of the 2012 Order, as required by Water Code section 13269. These actions are necessary to regulate and require water quality improvements to address the impairments from the highest priority growers, likely loading the most waste to surface waters. While the number of farms in Tier 3 is low relative to the total number enrolled, they collectively represent about 40,588 irrigated agriculture acres in the Central Coast Region and are located in the watersheds with the most severe and numerous nutrient, pesticide and sediment impairments.

As discussed above, the 2004 Order did not contain conditions or monitoring and reporting that allowed the Central Coast Water Board to conduct the above evaluations or make such determinations. These monitoring and reporting requirements improved on the 2004 Order monitoring and reporting requirements which only included cooperative surface receiving water monitoring and did not characterize waste discharges in runoff at the farm level.

The Central Coast Water Board specifically identified the need to prioritize those farms with actual or a high threat of potential discharge of pollutants to surface waters. This is a necessary first step to address the severe water quality problems in the Central Coast region and in effectively reducing current and on-going pollutant loading and associated water quality impacts impairing and threatening drinking water and public health, and sensitive organisms and habitats in riparian and estuarine areas.

Issue 3: Actions to Comply with Specific Provisions

Explain what actions the Central Coast Water Board believes are required for compliance with the following provisions prior to the end of 2013:

Response 3:

Water quality standards compliance (Provisions 22 and 23)

There is no requirement to achieve water quality standards by the end of 2013. The Time Schedule and Milestones in Table 4 of the Order require ongoing measurable progress towards water quality standards, but there is no specific deadline during that time period to show any specific amount of progress. Between now and the end of 2013, to comply with Provisions 22 and 23 of the 2012 Order, growers with Tier 1, 2, or 3 farms must develop or update their Farm Plan, continue implementing management practices identified in the Farm Plan to address site-specific water quality problems/waste discharges, continue collecting information to evaluate management practice effectiveness, and implement all provisions with specified compliance dates prior to December 2013 (such as install backflow prevention devices if they have not already done so, submit some groundwater monitoring results, submit the Annual Compliance Form reporting, Provision 67 of the 2012 Order, due in October 2012 and 2013).

The 2012 Order does not require immediate compliance with water quality standards. As stated in Finding 10 of the 2012 Order:

“This Order requires compliance with water quality standards. Dischargers must implement, and where appropriate update or improve, management practices, which may include local or regional control or treatment practices and changes in farming practices to effectively control discharges, meet water quality standards and achieve compliance with this Order. Consistent with the Water Board’s Policy on Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy, 2004), dischargers comply by implementing and improving management practices and complying with other conditions, including monitoring and reporting requirements.” See Order No. R3-2012-0011, at page 4.

In other words, the Central Coast Water Board expected that growers would implement an iterative process consistent with the NPS Policy by implementing and then updating or improving management practices as needed to eventually achieve compliance with water quality standards. This approach was clarified in Attachment A to the 2012 Order, which states: “The Central Coast Water Board recognizes that growers may not achieve immediate compliance with all requirements. Thus, this Order provides reasonable schedules for growers to reach full compliance over many years by implementing management practices and monitoring and reporting programs that demonstrate and verify measurable progress annually.” See Order No. R3-2012-0011 (As stated in the 2012 Order (Attachment A, Part A. Additional Finding #2). Table 4, Time Schedules for Milestones sets forth a milestone for Tier 1, Tier 2, and Tier 3 to achieve “measurable progress towards water quality standards in waters of the State or of the United States.”

Maintenance of containment structures (Provision 33)

By 2013, to comply with Provision 33 of the 2012 Order, growers with Tier 1, 2, or 3 farms that have containment structures must continue to make reasonable progress towards implementing management practices to avoid percolation of waste to groundwater and minimize surface water overflows that have the potential to impair water quality. This was required in the 2004 Order. The 2012 Order does not require specific methods or practices. In addition, there is no

specified due date for completion. It is reasonable that a grower with a lower risk discharge may take longer to initiate or complete management practice implementation. In this case, the grower would likely take minimal action by 2013. Growers can choose to implement practices such as, but not limited to, minimizing the volume of water or amount of waste in runoff to the containment structure, or implementing biological treatment using wood chips. Growers must also initiate efforts to select and implement methods to evaluate the effectiveness of chosen practices. For example, Water Board expects that growers who have new containment structures would likely do this by initiating a qualitative evaluation of what chemicals may be present in the containment structure water, what estimated volume of water is present in the structure and when, and the likelihood that any waste will discharge to groundwater or surface water considering the depth to groundwater, the proximity of drinking water wells, and proximity to surface water.

Maintenance of riparian vegetative cover and of riparian area (Provision 39)

By 2013, to comply with Provision 39, the Water Board expects growers who farm adjacent to surface waterbodies to continue to maintain existing, naturally occurring, riparian vegetative cover (such as trees, shrubs, and grasses) in riparian areas to minimize the discharge of waste such as sediment and chemicals that adhere to sediment. Growers would do this by avoiding actions that encroach on existing, natural riparian areas. Compliance with Provision 39 does not require installation of any equipment or structures, modification of the existing area farmed, or technical delineation or characterization of riparian or streambank conditions.

IV. CLOSING STATEMENT

The Central Coast Water Board will testify that the Petitioners have not met their burden of proving each of the three conditions necessary for granting a stay of conditions of the Ag Order. In particular, the Petitioners have not proved that they will suffer substantial harm while the petition is under review if a stay is not granted and they have not proved the lack of substantial harm to other interested persons and the public if a stay is granted. The request for a stay should therefore not be granted.