Nathan G. Alley, Staff Attorney (State Bar No. 237306)
Linda Krop, Chief Counsel (State Bar No. 118773)
ENVIRONMENTAL DEFENSE CENTER
906 Garden Street
Santa Barbara, California 93101
Telephone: (805) 963-1622
Facsimile: (805) 962-3152
Email: nathanalley@edcnet.org, lkrop@edcnet.org

Attorneys for Petitioners
MONTEREY COASTKEEPER,
SANTA BARBARA CHANNELKEEPER,
SAN LUIS OBISPO COASTKEEPER

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the matter of the Petition of MONTEREY COASTKEEPER, SANTA BARBARA CHANNELKEEPER and SAN LUIS OBISPO COASTKEEPER For Review of Action by the California Regional Water Quality Control Board, Central Coast Region, in adopting the Conditional Waiver of Waste Discharge Requirements for Discharges From Irrigated Lands, Order No. R3-2011-0017	**REQUEST FOR STAY AND PETITION FOR REVIEW OF CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION EXECUTIVE OFFICER ORDER NO. R3-2011-0017**

INTRODUCTION

Monterey Coastkeeper ("MCK"), Santa Barbara Channelkeeper ("SBCK") and San Luis Obispo Coastkeeper ("SLOCK") (collectively "Petitioners") submit this petition for review of a Regional Board Executive Officer action that was illegal and improper under California Water Code Sections 13223 and 13269, and completely unacceptable in light of ongoing water quality degradation on the Central Coast. Pursuant to California Water Code Section 13320, MCK, SBCK and SLOCK hereby petition the State Water Resources Control Board ("State Board") for review of the California Regional Water Quality Control Board, Central Coast Region's ("Regional Board") Conditional Waiver of Waste Discharge Requirements for Discharges of Irrigated Lands, Executive Officer Order No. R3-2011-0017 ("Order"). The Order is not consistent with the Water Quality Control Plan for the Central Coast Region ("Basin Plan"), is not in the public interest, and is not supported by evidence in the record. Moreover, the Order was not adopted by the Regional Board itself, but rather by its Executive Officer, and that action was a fundamental violation of procedures set forth in both the Government Code and the Water Code.

I. NAMES AND CONTACT INFORMATION OF PETITIONERS

MONTEREY COASTKEEPER
The Otter Project
Attn: Steve Shimek, Executive Director
475 Washington Street, Suite A
Monterey, California 93940
Telephone: (831) 646-8837, ext. 114
Facsimile: (831) 646-8843
Email: steve@montereycoastkeeper.org

SANTA BARBARA CHANNELKEEPER
Attn: Kira Redmond, Executive Director
714 Bond Avenue
Santa Barbara, California 93103
Telephone: (805) 563-3377
Facsimile: (805) 587-5385
Email: kira@sbck.org

SAN LUIS OBISPO COASTKEEPER
Attn: Gordon Hensley, Executive Director
1013 Monterey Street, Suite 202
San Luis Obispo, California 93401
Telephone: (805) 781-9932
Facsimile: (805) 781-9384
Email: g.r.hensley@sbcglobal.net

II. SPECIFIC ACTION OF THE REGIONAL BOARD TO BE REVIEWED

Petitioners seek review of the Executive Officer's adoption of the Conditional Waiver of Waste Discharge Requirements for Discharges of Irrigated Lands, Order No. R3-2011-0017 (renewing Order No. R3-2011-0208). A copy of the Order is attached hereto as Exhibit A.

III. DATE ON WHICH THE REGIONAL BOARD ACTED

The Executive Officer adopted Order No. R3-2011-0017 on September 30, 2011.

IV. FULL AND COMPLETE STATEMENT OF REASONS THE REGIONAL BOARD'S ACTION WAS INAPPROPRIATE AND IMPROPER

Order No. R3-2011-0017 violates California Water Code Section 13269, because it is not consistent with the Central Coast Region Basin Plan, is not in the public interest, and is predicated on findings that are not supported by evidence in the record. Moreover, the Order was not adopted by the Regional Board itself, but rather by its Executive Officer, and that action

was a fundamental violation of procedures set forth in both the Government Code and in Water Code Sections 13223 and 13269.

Regional Board staff explained the significance of water quality problems related to agricultural discharges when the matter was considered at a March 17, 2011, Regional Board hearing:

> Discharges of waste associated with agricultural discharges (e.g., pesticides, sediment, nutrients) are a major cause of water pollution in the Central Coast region. The water quality impairments are well documented, severe, and widespread. Nearly all beneficial uses of water are affected, and many (not all) 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.

(Regional Board Staff Report for March 17, 2011, Item No. 14, at p. 1, attached hereto as Exhibit B.)

Under the Porter-Cologne Water Quality Control Act ("Porter-Cologne"), agricultural discharges of pollutants are subject to regulation through waste discharge requirements (WDRs).

> [WDRs] shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, [and] the need to prevent nuisance . . . .

(Cal. Water Code § 13263(a).) In the absence of a WDR, the discharge of pollutants is generally prohibited. (Cal. Water Code § 13264(a).) State or Regional Boards may conditionally waive WDRs, however, where "the waiver is consistent with any applicable state or regional water quality control plan and is in the public interest." (Cal. Water Code § 13269(a)(1).) Such conditional waivers may not exceed five years in duration, but may be renewed in increments of five years or less upon review by the appropriate board. (*Id*. at §§ 13269(a)(2), (f).)

The Regional Board first adopted a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, Order No. R3-2004-0117 ("2004 Order") for the Central Coast Region on July 9, 2004. A copy of the 2004 Order is attached hereto as Exhibit C. The 2004 Order was informed by an Agricultural Advisory Panel ("AAP") comprised of stakeholder representatives from agricultural interests and environmental organizations, including SBCK and the Environmental Defense Center ("EDC").

The Regional Board found the 2004 Order to be in the public interest, per Water Code Section 13269(a)(1), because:

> (1) [I]t include[d] conditions that are intended to reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the state, [and] (2) it contain[ed] more specific and more stringent conditions for protection of water quality compared to existing regulatory programs . . . .

(2004 Order at p. 3.) When the 2004 Order was adopted, Regional Board staff forecast that "at the end of the first [five-year] waiver cycle, the program [would] be evaluated and revised as necessary as part of the waiver review process." (Regional Board Staff Report for July 8, 2004, Item No. 3, at p. 17, attached hereto as Exhibit D.) For example, the 2004 Order states that in time "increased reporting and monitoring may be required in order to ensure that water quality is improving." (2004 Order, *supra*, at p. 3.)

Regional Board staff convened a second AAP, which included MCK, SBCK and EDC, in December 2008. (Letter from Regional Board Staff to AAP, Dec. 12, 2008, attached hereto as Exhibit E.) This AAP was tasked with discussing proposed updates to the 2004 Order, to be included in a revised conditional waiver that would meet the requirements of Water Code Section 13269(a)(1). In particular, staff indicated that "new requirements" are "necessary to

directly address and resolve the major water quality issues associated with irrigated agriculture." (Letter from Regional Board Staff to AAP, Dec. 12, 2008, at p. 1.) Staff indicated that while some regulated entities have improved agricultural operations to benefit water quality, "other growers are not making progress, and severe water quality problems continue." (*Id*. at p. 2.) For example, "the food safety issue has resulted in some growers removing riparian habitat and buffer zones on and around irrigated agricultural fields, which is a direct violation of the Basin Plan." (*Id*. at p. 3.)

Based upon these identified water quality concerns, Regional Board staff indicated that the 2004 Order would be "revised to require growers and property owners to demonstrate compliance with the following conditions per defined schedules":

- Eliminate toxic discharges of agricultural pesticides to surface waters and groundwater
- Reduce nutrient discharges to surface waters to meet nutrient standards
- Reduce nutrient discharges to groundwater to meet groundwater standards
- Minimize sediment discharges from agricultural lands
- Protect aquatic habitat (riparian areas and wetlands) and their buffer zones

(*Id*.)

Initially, the AAP was convened to meet for approximately five meetings between December 2008 and April 2009. (*Id*. at p. 4.) However, when the 2004 Order expired in July 2009, the AAP was still engaged in substantive internal discussion, and Regional Board staff opted to extend the stakeholder input process past July. On July 10, 2009, as recommended by staff, the Regional Board adopted Order No. R3-2009-0050, which renewed the 2004 Order in its extant form for one additional year.

Ultimately, members of the AAP were unable to reach consensus with Regional Board staff about the direction of a revised Order, and the AAP dissolved at the conclusion of its

September 22, 2009, meeting. Regional Board staff then solicited public comment on the 2004 Order and proposed revisions. MCK, SBCK, EDC and others submitted a letter on December 2, 2009, which explained that the 2004 Order is no longer adequate to protect water quality and does not meet the requirements of Water Code Section 13269(a)(1). (Letter from EDC, MCK and SBCK to Regional Board, Dec. 2, 2009, attached hereto as Exhibit F.)

After receiving input on the 2004 Order and proposed revisions, Regional Board staff released a new Draft Order for public comment on February 1, 2010. The February 2010 Draft Order is attached hereto as Exhibit G. This Draft Order includes components that are necessary for the waiver to be consistent with Water Code Section 13269, including enumerated water quality standards, explicit and liberal timelines for compliance, riparian setbacks and vegetated buffers, individual discharge monitoring requirements and protections for drinking water. These provisions are also consistent with the proposed updates to the 2004 Order that staff described to the second AAP.

Regional Board staff set forth overwhelming evidence that the 2004 Order is inconsistent with water quality plans and standards, and is not in the public interest, in a staff report accompanying the February 2010 Draft Order. (Regional Board Staff Preliminary Draft Report, Feb. 1, 2010, attached hereto as Exhibit H.) The 2004 Order was intended to "regulate discharges from irrigated lands to ensure that such dischargers are not causing or contributing to exceedances of any Regional, State, or Federal numeric or narrative water quality standard." (*Id*. at p. 8.) Six years after it was adopted, however, there is "no direct evidence that water quality is improving due to the 2004 Conditional Waiver." (*Id*. at p. 7.) In fact, many water segments throughout the region are listed as impaired under Clean Water Act section 303(d), nearly all

beneficial uses are impacted by agricultural pollution, and these impairments remain "well documented, severe, and widespread" despite the fact that a number of dischargers have enrolled under the 2004 Order. (*Id*. at p. 4.) For this reason, Regional Board staff concluded that "[i]mmediate and effective action is necessary to improve water quality protection and resolve the widespread and serious impacts on people and aquatic life." (*Id*.)

Despite the evidence and staff's recommendations, the Regional Board declined to adopt the February 2010 Draft Order and instead renewed the 2004 Order for a second time on July 8, 2010. This Order (No. R3-2010-0040) was specifically set to expire on March 31, 2011.

The Board also directed staff to revise the February 2010 Draft Order, and to present the revised Order at a March 17, 2011, hearing. Based upon this direction, staff prepared a new Draft Order in November 2010, which imposed a significantly lower regulatory burden on the discharger community, but which retained the fundamental perspective (illustrated more specifically in the February 2010 Draft Order) that "[i]mmediate and effective action is necessary to improve water quality protection and resolve the widespread and serious impacts on people and aquatic life." (*Id*.) The November 2010 Draft Order is attached hereto as Exhibit I.

On January 3, 2011, the Board and staff received comments from Petitioners and the regulated community regarding the relative strengths and weaknesses of the November 2010 Draft Order, and staff was directed to revise the Draft Order a second time. The subsequent March 2011 Draft Order significantly reduced the effectiveness of the waiver program, and, for a majority of dischargers, represented no change from the 2004 Order. The March 2011 Draft Order is attached hereto as Exhibit J. Comments on the March 2011 Draft Order from EDC, MCK and SBCK are attached hereto as Exhibits K and L.

At a March 17, 2011, hearing in Watsonville, the regulated community expressed continued dissatisfaction with staff's Draft Order. Due to the lack of a quorum, the Board was not able to take any action and instead continued the hearing to May 4, 2011. On March 29, 2011, however, the 2004 Order was renewed again, for a third time, through September 2011 (March 2011 Order). The March 2011 Order was adopted by the Executive Officer and without the public hearing required by Water Code Section 13269(f).

Petitioners filed a request for review and a stay of the Executive Officer's 2011 Order with the State Board on April 28, 2011. While Petitioners' request for review and a stay was pending, the Regional Board's Executive Officer adopted a second 2011 Order on September 30. For the specific reasons discussed below, the Executive Officer's action in adopting the September 2011 Order was improper and inappropriate under state law.

A. THE ORDER WAS RENEWED WITHOUT A HEARING

Water Code Section 13269(f) states:

> Prior to renewing any waiver for a specific type of discharge established under this section, the state board or a regional board shall review the terms of the waiver policy at a public hearing. At the hearing, the state board or a regional board shall determine whether the discharge for which the waiver policy was established should be subject to general or individual waste discharge requirements.

The Regional Board commenced a hearing on March 17, 2011, to renew the 2010 Order (with revisions). The hearing ran overtime and the Regional Board was unable to entirely accommodate public comment, conclude its review of "the terms of the waiver policy" or "determine whether the discharge . . . should be subject to general or individual waste discharge requirements." Consequently, the March 17 hearing was continued to May 4, 2011.

On March 29, 2011, prior to May 4 and the close of the March 17 public hearing, the Executive Officer renewed the waiver for irrigated agricultural discharge. That action was a direct violation of the plain terms of Water Code Section 13269(f).

There were no other hearings before the Executive Officer adopted a second 2011 Order on September 30, renewing the waiver for one year.

B. THE EXECUTIVE OFFICER MAY NOT RENEW THE ORDER

Water Code Section 13223 states:

> (a) Each regional board may delegate any of its powers and duties vested in it by this division to its executive officer *excepting only the following*: (1) the *promulgation of any regulation*; (2) the *issuance, modification, or revocation* of any water quality control plan, water quality objectives, or *waste discharge requirement* . . . .

(Emphasis added.) The Regional Board may not delegate the power to promulgate a regulation or to issue, modify or revoke a waste discharge requirement (WDR). As described the below, the adoption of Order R3-2011-0208 on March 29 and Order R3-2011-0017 on September 30, 2011, was both the promulgation of a regulation and the modification/revocation of a WDR, and was therefore proscribed by Section 13223.

1. THE ORDER IS A "REGULATION"

Government Code Section 11342.600 states:

> "Regulation" means every rule, regulation, *order*, or standard of general application or the amendment, supplement, or revision of any rule, regulation, *order*, or standard adopted by any state agency to *implement, interpret, or make specific the law enforced or administered by it*, or to govern its procedure.

(Emphasis added.) Order R3-2011-0017 is clearly a "regulation" as contemplated by Water Code Section 13223(a)(1) and as defined by the plain language of Government Code Section 11342.600. To illustrate, Order R3-2011-0017 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.

(Emphasis added.) "The Conditional Waiver provides an alternative *regulatory* option to adoption of WDRs for all Dischargers." (*Id*., emphasis added.) "Waste *specifically regulated* under this Order includes . . . ." (*Id*., emphasis added.)

Order R3-2011-0208 was adopted to implement the requirements of Water Code Sections 13260 and 13269, which are enforced and administered by the Regional Board on the Central Coast, and is clearly a "regulation" as defined by Government Code Section 11342.600.

2. THE ORDER MODIFIES OR RESCINDS A WASTE DISCHARGE REQUIREMENT

The Order conditionally waives the requirements of Water Code Section 13260; without the Order, agricultural dischargers would be subject to the waste discharge reporting requirements of Water Code Section 13260. On a fundamental level, therefore, the Order displaces a WDR. If the Executive Officer is specifically precluded from "the issuance, modification or revocation" of a WDR, per Water Code Section 13223, it makes no sense that he or she would be authorized to displace or "waive" a WDR. For example, under that nonsensical scenario, the Executive Officer would be delegated the authority to supersede the Regional

Board; the Regional Board could issue a WDR, and the Executive Officer could then immediately waive (or "revoke") the WDR.

C. THE ORDER IS NOT CONSISTENT WITH THE BASIN PLAN

Even if the procedural defects described above may be overcome, the Order must be vacated because it is not consistent with the Basin Plan. In order to adopt a conditional waiver of WDRs under Water Code section 13269, the Regional Board must ensure that the exempted discharges are consistent with state and regional water quality plans, including the Central Coast Basin Plan. As the foregoing data demonstrate, existing agricultural discharges do not comply with the Basin Plan in important respects and thus render the 2010 Order inconsistent with state law. In fact, staff's data and evaluation confirm that the 2010 Order is not, in most instances, even moving water quality toward meeting Basin Plan or drinking water standards. Accordingly, renewal of the 2010 Order is unlawful under Water Code Section 13296 and at odds with the larger public interest.

For example, general water quality objectives in the Basin Plan provide that:

> Toxicity
> All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board. . . .
>
> Pesticides
> No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.
>
> For waters where existing concentrations are presently nondetectable or where

> beneficial uses would be impaired by concentrations in excess of nondetectable levels, total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer.

(Basin Plan at p. III-4.) Similarly, the Basin Plan specifies that suspended sediment, turbidity and temperature shall not be altered by any discharge in a manner that would adversely impact beneficial uses or cause a nuisance. (*Id*. at pp. III-3 – III-4.)

Data gathered by staff makes it clear that agriculture causes "widespread and serious impacts on people and aquatic life" on a regular and ongoing basis. (Regional Board Staff Report for March 17, 2011, Item No. 14, *supra*, at p. 1.) Domestic and public water supplies have been significantly contaminated with nitrates and other agricultural pollutants, in many cases at levels that far exceed applicable drinking water standards. Similarly, toxic surface water discharges from irrigation ditches continue to regularly violate water quality standards, despite claims of significant enrollment under the 2004 Order. And trends in the use of riparian vegetation buffers to protect against sedimentation, nutrient loading, and temperature increases are going in exactly the wrong direction. (Regional Board Staff Preliminary Draft Report, Feb. 1, 2010, *supra*, at p. 16.)

The severity of the problem is demonstrated by the existing Section 303(d) impaired waterbodies list for the Central Coast region and by the Regional Board's July 2009 recommendations for updating that list. On the existing (2006) list, water segments with agriculture as a source of impariment include:

> Alamo Creek, Alisal Creek (Salinas), Blanco Drain, Bradley Canyon Creek, Carpinteria Creek, Carpinteria Marsh (El Estero Marsh), Cholame Creek, Chorro Creek, Elkhorn Slough, Espinoza Slough, Los Osos Creek, Love Creek, Main Street Canal, Moro Cojo

> Slough, Moss Landing Harbor, Newell-Creek (Upper), Nipomo Creek, Old Salinas River Estuary, Orcutt Creek, Oso Flaco Lake, Pacific Ocean at East Beach (mouth of Mission Creek, Santa Barbara County), Pacific Ocean at Jalama Beach (Santa Barbara County), Salinas Reclamation Canal, Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920), Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River), Salinas River (upper, confluence of Nacimiento River to Santa Margarita Reservoir), Salinas River Lagoon (North), San Lorenzo Creek, Santa Maria River, Santa Ynez River (below city of Lompoc to Ocean), Santa Ynez River (Cachuma Lake to below city of Lompoc), Tembladero Slough, Tequisquita Slough, Valencia Creek, Watsonville Slough, and Zayante Creek.

(2006 Clean Water Act Section 303(d) List, Central Coast Region, *available at* http://www.swrcb.ca.gov/rwqcb3/water_issues/programs/tmdl/index.shtml.)

In its most recent biennial review, staff assessed data from 347 of the region's 818 waterbodies and recommended 515 new listings, bringing total recommended listings to 707. (Regional Board Staff Report for July 10, 2009, Item 12, at p. 1., *available at* www.swrcb.ca.gov/rwqcb3/water_issues/programs/tmdl/303d_list.shtml.) A quick review of the recommended listings readily reveals that nutrient, sediment and pesticide loading continues to be a significant problem in areas dominated by agricultural uses, and agriculture-related discharges are the source of many new listings. (*Id*. at Appendix A.) In contrast, staff proposed a mere 49 waterbodies for delisting, of which only 6 are meeting water quality standards (the remainder of the proposed delistings appear to be driven by lack of data). In short, water quality in the Central Coast region is continuing to degrade, especially in those waterbodies affected primarily by agricultural discharges. The 2004 Order, as renewed by Order No. R3-2011-0017, is not adequate to protect water quality from toxic discharges and harmful pesticide pollutants, as required by the Basin Plan. Order No. R3-2011-0017 therefore is inconsistent with the Basin Plan and violates Water Code Section 13269(a)(1).

D. THE ORDER IS NOT IN THE PUBLIC INTEREST

Water Code Section 13269(a)(1) requires that discharge waivers be in the public interest. Order No. R3-2011-0017 is not in the public interest, because it "lacks clarity and focus," does not provide for adequate "compliance and verification monitoring," and allows "agricultural discharges [to] continue to severely impact water quality in most receiving waters." (Regional Board Staff Preliminary Draft Report, Feb. 1, 2010, *supra*, at p. 19.) "[C]ontinuing to operate in a mode that causes constant or increasingly severe receiving water problems is not a sustainable model" and will result in "increasingly impaired habitat[] and reactive fixes." (*Id*. at p. 8.) Staff has, therefore, strongly recommended that the Regional Board "take action immediately to better regulate agricultural discharges on the Central Coast." (*Id*.)

1. ORDER NO. R3-2011-0017 DOES NOT ADEQUATELY PROTECT WATER QUALITY

The major water quality issues on the Central Coast are "toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater." (*Id*., at p. 4.) "Agricultural discharges (primarily due to contaminated irrigation runoff and percolation to groundwater) are a major cause of water quality impairment" for drinking water as well as aquatic organisms. (*Id*.) In some cases, agricultural discharges are the sole or primary source of pollution in impaired water bodies. Even in areas where agriculture is not the only source of pollution, it is a primary contributor. (*Id*. at p. 17.) And for the most part, the situation has not improved under the existing 2004 Waiver. Of particular relevance are the following facts:

- Most of the same areas that showed serious contamination from agricultural pollutants five years ago are still seriously contaminated;

- The 2008 Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region ("Impaired Waters List") identified surface water impairments for approximately 167 water quality limited segments related to a variety of pollutants (for example, salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment;

- Agricultural discharges most severely impact surface waterbodies in the lower Salinas and Santa Maria watersheds, both areas of intensive agricultural activity. Evaluated through a multi-metric of water quality, 82 percent of the most degraded sites in the Central Coast Region are in these agricultural areas;

- Nitrate concentrations in areas that are most heavily impacted are not improving significantly or in any widespread manner and in a number of sites in the lower Salinas and Santa Maria watersheds appear to be getting worse in the last few years (from Central Coast Ambient Monitoring Program (CCAMP) and Cooperative Monitoring Program (CMP) data); and

- Agricultural use of pyrethroid pesticides in the Central Coast Region and associated toxicity are among the highest in the state. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation, the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected to be toxic (42 percent), and the highest rate (by threefold) of active ingredients applied (113 lbs/acre).

(*Id*. at p. 12.)

2. ORDER NO. R3-2011-0017 DOES NOT ADEQUATELY PROTECT HUMAN HEALTH

In the Central Coast Region "thousands of people are drinking water contaminated with unsafe levels of nitrate or are drinking replacement water to avoid drinking contaminated water." (*Id*. at p. 4.) Beyond health considerations, "[t]he cost to society for treating [this] polluted drinking water is estimated to be in the hundreds of millions of dollars." (*Id*.) The facts related to drinking water contamination are startling:

- Thirty percent of all sites from CCAMP and CMP have average nitrate concentrations that exceed the drinking water standard, and approximately 57 percent exceed the level necessary to protect aquatic life. Several of these waters have average nitrate

concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek), the Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek), the lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain), the lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel), and the Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek);

- Groundwater contamination from nitrate severely impacts public drinking water supplies in the Central Coast Region. A Department of Water Resources survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast Region found that 17 percent of the wells (121 wells) detected a constituent at concentrations above one or more drinking water standards or primary maximum contaminant levels (MCLs). Nitrate caused the most frequent MCL exceedances (45 mg/L nitrate as nitrate or 10 mg/L nitrate as nitrogen), with approximately 9 percent of the wells (64 wells) exceeding the MCL for nitrate. According to data maintained in the GAMAGeotracker database, recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells impacted) and Santa Maria groundwater (approximately 17 percent) basins. In the Gilroy-Hollister Groundwater Basin, 11 percent are impacted, and the CDPH identified over half of the drinking water supply wells as vulnerable to discharges from agriculturalrelated activities. Due to these elevated concentrations of nitrate in groundwater, many public water supply systems are required to provide wellhead treatment, at significant cost, to remove nitrate before delivery to the drinking water consumer;

- Groundwater contamination from nitrate severely impacts shallow domestic drinking water supplies in the Central Coast Region. Domestic wells (wells supplying one to several households) are typically screened in shallower zones than public supply wells, and typically have higher nitrate concentrations as a result. Water quality monitoring of domestic wells is not generally required and water quality information is not readily available, however based on the limited data available, the number of domestic wells that exceed the nitrate drinking water standard is likely in the range of hundreds to thousands in the Central Coast Region;

- In Monterey County, 25 percent of 352 wells sampled (88 wells) had concentrations above the nitrate drinking water standard in the northern Salinas Valley. In portions of the Salinas Valley, up to approximately 50 percent of the wells surveyed had concentrations above the nitrate drinking water standard, with average concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water standard. Nitrate exceedences in the Gilroy-Hollister and Pajaro groundwater basins are similar, as reported by local agencies/districts for those basins; and

- In many cases, whole communities relying on groundwater for drinking water purposes are affected. Local agencies have reported the shut down of domestic drinking water wells due to high nitrate concentrations. In addition, local agencies and consumers have reported impacts to human health resulting from nitrate contaminated groundwater likely due to agricultural land uses, and spent significant financial resources to ensure proper drinking water treatment and reliable sources of quality drinking water for the long-term. In the Central Coast Region, the Monterey County community of San Jerardo, the San Martin area of Santa Clara County, and the City of Morro Bay are among the local communities affected by nitrate.

(*Id*. at p. 15.)

3. ORDER NO. R3-2011-0017 DOES NOT ADEQUATELY PROTECT AQUATIC ORGANISMS OR HABITAT

In agricultural watersheds on the Central Coast, most of the surface waterbodies are no longer "suitable for safe recreational fishing or to support aquatic life." (*Id*. at p. 15.) Additionally, "large stretches of rivers in the entire region's major watersheds have been severely impaired or completely destroyed by severe toxicity from pesticides." (*Id*. at p. 4.) These "poor biological and physical conditions" indicate the extent of degradation of the aquatic habitat. (*Id*. at p. 15.) More particularly:

- Discharges from some agricultural drains have shown toxicity every time the drains are sampled. Researchers collaborating with CCAMP have shown that these toxic discharges can cause toxic effects in river systems that damage benthic invertebrate communities;

- Agricultural discharges contribute to sustained turbidity with many sites heavily influenced by agricultural discharges exceeding 100 NTUs as a median value. Most CCAMP sites have a median turbidity level of under 5 NTUs. Resulting turbidity greatly exceeds levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds;

- Agricultural discharges result in water temperatures that exceed levels that are desirable for salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez Rivers;

- Bioassessment data shows that creeks in areas of intensive agricultural activity have impaired benthic communities. Aquatic habitat is often poorly shaded, high in temperature, and has in-stream substrate heavily covered with sediment;

- Several Marine Protected Areas (MPAs) along the Central Coast are at risk of pollution impacts from sediment and water discharges leaving river mouths. Three of the MPAs, Elkhorn Slough, Moro Cojo Slough and Morro Bay, are estuaries that receive runoff into relatively enclosed systems;

- For Moro Cojo Slough and Elkhorn Slough, nitrates, pesticides and toxicity are documented problems. These two watersheds have more intense irrigated agricultural activity than does the Morro Bay watershed;

- Agricultural activities result in the alteration of riparian and wetland areas, and continue to degrade the waters of the State and associated beneficial uses. Owners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops and in many areas continue to do so;

- As a result of aquatic habitat degradation, watershed functions that serve to maintain high water quality, aquatic habitat and wildlife - filtering pollutants, recharging aquifers, providing flood storage capacity, have been disrupted;

- Data collected from CCAMP and CMP indicate that population characteristics of aquatic insects (benthic macroinvertebrates) important to ecological systems reflect poor water quality, degradation or lack of aquatic habitat, and poor overall watershed health at sites in areas with heavy agricultural land use. Aquatic habitat is often poorly shaded, high in temperature, and stream bottoms are heavily covered with sediment;

- The lower Salinas watershed and lower Santa Maria watersheds score low for common measures of benthic macroinvertebrate community health and aquatic habitat health;

- Unstable, bare dirt and tilled soils, highly vulnerable to erosion and stormwater runoff, are common directly adjacent to surface waterbodies in agricultural areas. Erosion and stormwater runoff from agricultural lands contributes sediment and sustained turbidity at levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds;

- Degradation of aquatic habitat also results in water temperatures that exceed levels that are desirable for salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez Rivers;

- Real and/or perceived incompatible demands between food safety and environmental

protection and subsequent actions taken by Dischargers to address food safety concerns associated with environmental features have resulted in the removal of aquatic habitat and related management practices; and

- According to a Spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management practices removed.

(*Id*. at pp. 12, 16.)

Given the human health, ecological and economic tolls that agricultural discharges are exacting along the Central Coast under the 2004 Order, and which will continue under the September 2011 Order, there is no reasonable argument that renewal of the existing waiver is consistent with Basin Plan objectives or policies, or is in any way "in the public interest" as required by Water Code Section 13269(a)(1).

V. MANNER IN WHICH PETITIONERS ARE AGGRIEVED

Petitioner Monterey Coastkeeper works to tackle water pollution problems through policy advocacy and legal tools to ensure that the interests of development, industry and urban activity are kept in line with the environmental needs and wishes of the Monterey Bay and Salinas Valley community it serves. MCK has thousands of members nationally, hundreds of whom live in the Monterey Bay watershed and depend upon clean local streams and shorelines in order to further their recreational, scientific, economic and social interests. Monterey Bay and the Salinas River are home to two national wildlife refuges and a national marine sanctuary. The Bay, the Salinas River National Refuge and nearby Elkhorn Slough are world-reknowned for their wildlife

viewing and recreational opportunities. Since its inception, MCK has been active in championing for effective government regulations, good public policy and an active community role in protecting freshwater and marine waters alike. MCK's members are particularly concerned with pollution related to agricultural operations in the Monterey Bay watershed. When not properly managed, agricultural runoff poses significant threats to water quality. Nutrients, pesticides, sediments and other pollutants are among the threats to both freshwater and marine ecosystems. MCK participated actively as a stakeholder in the AAP that informed the current process to update the conditional waiver.

MCK and its members are aggrieved by the Executive Officer's decision to renew the inadequate 2011 Order. MCK is concerned that current monitoring and control of agricultural runoff is minimal and inadequate. MCK advocates for more effective monitoring and control requirements to ensure that polluters are held accountable for their activities throughout the agricultural communities. MCK's members live and work in the region and have a beneficial interest in assuring that agriculture is regulated by meaningful and effective requirements to prevent and minimize pollution discharges to the Salinas River and downstream waters. The Salinas River already is impaired by high levels of nutrients and other agriculturally–related pollutants. Any additional or unmonitored pollution releases to that River are detrimental to MCK and its members.

Petitioner Santa Barbara Channelkeeper is a grassroots non-profit organization that works to protect and enhance the water quality of the waters of southern Santa Barbara County for the benefit of its 900 members, as well as natural ecosystems and human communities. SBCK is dedicated to the preservation, protection and defense of the environment, wildlife, and the natural

resources of the waters of southern Santa Barbara County and other area receiving waters. To further these goals, SBCK works to ensure the implementation and enforcement of the Porter-Cologne Water Quality Control Act, the Central Coast Basin Plan and other relevant laws through a combination of policy advocacy, water quality monitoring, and community education and engagement. SBCK participated actively as a stakeholder in the AAPs that informed both the 2004 Order and the current process to update the conditional waiver.

Since 2002, SBCK has been monitoring water quality throughout the Goleta Slough watershed and in other nearby streams in the Central Coast Region. Immediately downstream of undeveloped National Forest lands, agricultural facilities dominate the landscape surrounding streams in the Goleta area. Many of SBCK's monitoring sites are directly downstream of these agricultural influences, and at these sites, it has been determined that stream water quality is regularly polluted with concentrations of nutrients, bacteria and suspended sediments that exceed Basin Plan Water Quality Objectives. These results are verified by the Regional Board's CCAMP data.

Members of SBCK use, recreate on and enjoy the aesthetic values of the beaches, rivers and creeks ("Receiving Waters") of southern Santa Barbara County, to which numerous irrigated agricultural operations discharge pollution. Members of SBCK use and enjoy the Receiving Waters for recreational, scientific, aesthetic, educational, conservation and commercial purposes, including but not limited to, fishing, boating, kayaking, surfing, swimming, windsurfing, fish and wildlife observation, photography, hiking and aesthetic enjoyment. The discharge of pollutants, including nutrients, pesticides, and sediment from irrigated agricultural operations to Receiving Waters impairs those uses. Thus, the interests of SBCK's members have been, are being, and

will continue to be adversely affected by discharges from irrigated agricultural operations. The continuing and additional impairments to water quality and beneficial uses that are allowed by the renewal of the outdated and inadequate 2011 Order directly harm SBCK members' use and enjoyment of the water.

Petitioner San Luis Obispo Coastkeeper, a program of Environment in the Public Interest, has consistently participated in water pollution, environmental impact and endangered species permit process via comments on particular permits, or when necessary bringing enforcement actions in northern Santa Barbara County and throughout San Luis Obispo County.

As such SLOCK has a direct interest in the Regional Board's Conditional Waiver of Waste Discharge Requirements for Discharges for Irrigated Lands, because the 800 members of the organization use local streams for recreational, scientific, economic and aesthetic purposes.

Contrary to the requirements set forth in Porter-Cologne and the Basin Plan, renewal of the 2004 Order allows agricultural discharges that result in water temperatures exceeding levels that are desirable for salmonids in the Salinas, Santa Maria and Santa Ynez rivers; nitrate concentrations that exceed the drinking water standard especially at a number of sites in the Santa Maria River watershed; and MPAs along the San Luis Obispo Coast and Morro Bay National Estuary are at risk of pollution impacts from sediment and water discharges originating on agricultural lands.

The continuing and additional impairments allowed by renewal of the 2011 Order directly harm SLOCK members' use and enjoyment of the water.

VI. REQUESTED STATE BOARD ACTION

Petitioners request the State Board to issue an order: (1) immediately staying the Executive Officer's September 30, 2011, Order renewing Order No. R3-2011-0208; (2) immediately ordering the Regional Board to vacate the Executive Officer's September 30, 2011, Order; and (3) ordering the Regional Board to immediately initiate a proceeding to either require WDRs for all dischargers previously enrolled under Order No. R3-2011-0208 or to adopt an adequately revised conditional waiver. A declaration from Steve Shimek, Executive Director of Monterey Coastkeepr, supporting Petitioners' requrest for a stay, is attached hereto as Exhibit M.

The State Board should immediately stay the Executive Officer's renewal of a deficient waiver. As required by California Code of Regulations, Title 23, Section 2053, petitioners can readily demonstrate facts proving:

(1) substantial harm to petitioner 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 fact or law regarding the disputed action.

First, as described above in Section V, Manner In Which Petitioners Are Aggrieved, there will be substantial harm to petitioners and to the public interest if a stay is not granted. Specifically, if Order No. R3-2011-0017 (renewing Order No. R3-2004-0117) is not revised to address serious gaps in its regulatory and enforcement scheme, water quality in the Central Coast Region will continue to degrade, threatening both drinking water supplies and aquatic public trust resources.

Second, there will be no substantial harm to other interested persons or to the public interest if a stay is granted. As noted above, the public interest will be furthered by a stay of

Order No. R3-2011-0017. The effect of a stay would most likely lead to a renewed effort by the Regional Board to update the 2004 conditional waiver.

Interested persons enrolled under Order No. R3-2011-0017 (and under the original 2004 waiver) have been on notice since the AAP was convened in 2008 that regulatory requirements may change or be increased. Those interested persons will not experience substantial harm (economic or otherwise) over the course of a stay, in part because the costs of implementing revised waiver conditions will be incremental and can be reasonably forecasted. Central Coast Water Board Staff, Draft Technical Memorandum: Cost Considerations, p. 9 (November 2010), attached as Exhibit N.

As noted by staff, statutory and regulatory requirements *must* be met by dischargers defined in the Porter-Cologne Water Quality Control Act:

> Resolving agricultural water quality issues will greatly benefit public health, present and future drinking water supplies, aquatic life, recreational, aesthetic and other beneficial uses. Resolving agricultural water quality issues will also require changes to farming practices, at a time of competing demands on farm income, regulatory compliance efforts, and food safety challenges, and may impact the local economy. No industry or individual has a legal right to pollute and degrade water quality, while everyone has a legal right to clean water. Similar to all other Dischargers, the agricultural community is responsible for identifying, preventing and resolving pollution caused by irrigated agriculture and complying with water quality requirements.
>
> Healthy watersheds and a sustainable agricultural economy can coexist. Protecting water quality and the environment while protecting agricultural benefits and interests will require change, and may shift who bears the costs and benefits of water quality protection. Continuing to operate in a mode that causes constant or increasingly severe receiving water problems is not sustainable.

March 2011 Staff Report, *supra*, at p. 12.

> In some cases practices can result in improved productivity that will offset costs associated with taking some land out of production for conservation practices. Some

> practices, such as improved irrigation efficiency and nutrient management, can result in cost savings over time.

2004 Negative Declaration, pp. 29-30. As Regional Board staff concluded in a 2010 analysis of cost considerations:

> [C]ost studies illustrate the variable effect of practice implementation on the bottom line of farming operations. As the UCCE cost studies show, and as Table 2 describes, most practices do yield benefits that improve overall conditions for farming operations, potentially reducing, and in some cases completely covering, the direct cost of implementation.

Draft Technical Memorandum: Cost Considerations, *supra*, p. 17.

Finally, a stay is warranted because, as the above petition evidences, there are substantial questions of law regarding the disupted action. As discussed at length above, there is a serious dispute as to whether a regional board may adopt an order that flies in the face of evidence presented by staff. A more immediate question of broader application is whether a regional board's executive officer may adopt a conditional waiver of waste discharge requirements. As discussed above, there are serious procedural flaws inherent in that course of action. Members of the public and, specifically, members of the regulated community will be very interested to learn whether an executive officer may "administratively" issue (or impose) waivers of waste discharge requirements.

VII. STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF LEGAL ISSUES

Points and authorities in support of legal issues raised in the Petition are stated in Section IV above.

VIII. THE PETITION HAS BEEN SENT TO THE REGIONAL BOARD

Copies of this Petition and the accompanying Declaration In Support Of Request For Stay have been sent to the following addresses:

Roger Briggs, Executive Officer
California Regional Water Quality Control Board, Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401
Email: rbriggs@waterboards.ca.gov

Frances McChesney, Senior Staff Counsel
Office of Chief Counsel
State Water Resources Control Board
1001 I Street, 22nd Floor
Sacramento, California 95814
Email: fmcchesney@waterboards.ca.gov

IX. SUBSTANTIVE ISSUES AND OBJECTIONS RAISED IN THE PETITION WERE RAISED BEFORE THE REGIONAL BOARD

Petitioners certify that the issues set forth above were presented in writing or orally to the Regional Board and Executive Officer in advance of the September 30, 2011, decision on this matter.

Respectfully submitted,

Dated: October 28, 2011

By: /s/ *Nathan G. Alley*
_____
Nathan G. Alley
Linda Krop
ENVIRONMENTAL DEFENSE CENTER

Attorneys for Petitioners
MONTEREY COASTKEEPER
SANTA BARBARA CHANNELKEEPER
SAN LUIS OBISPO COASTKEEPER

Attachments:

Exhibit A, Regional Board Order No. R3-2011-0017.

Exhibit B, Regional Board Staff Report for March 17, 2011, Item No. 14.

Exhibit C, Regional Board Order No. R3-2004-0117

Exhibit D, Regional Board Staff Report for July 8, 2004, Item No. 3.

Exhibit E, Letter from Regional Board Staff to AAP, Dec. 12, 2008.

Exhibit F, Letter from EDC, MCK and SBCK to Regional Board, Dec. 2, 2009.

Exhibit G, Feb. 1, 2010, Draft Order.

Exhibit H, Regional Board Staff Preliminary Draft Report, Feb. 1, 2010.

Exhibit I, Nov. 19, 2010, Draft Order.

Exhibit J, Mar. 2, 2011, Draft Order.

Exhibit K, Letter from EDC, MCK, SBCK and SLOCK to Regional Board, Mar. 11, 2011.

Exhibit L, Letter from EDC, MCK, SBCK and SLOCK to Regional Board, Mar. 15, 2011.

Exhibit M, Declaration of Steve Shimek In Support Of Request For Stay.

Exhibit N, Central Coast Water Board Staff, Draft Technical Memorandum, November 2010.

EXHIBIT A

REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
EXECUTIVE OFFICER ORDER NO. R3-2011-0017
TO EXTEND TERMINATION DATE OF
ORDER NO. R3-2004-0117
AND
UPDATE MONITORING AND REPORTING PROGRAM NO. R3-2011-0018

Conditional Waiver of Waste Discharge Requirements for Discharges of Waste from Irrigated Lands in the Central Coast Region

The Executive Officer of the Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board), pursuant to authority delegated under section 13223 of the California Water Code, makes the following findings, orders the extension of the termination date of Order No. R3-2004-0117 and update of the Monitoring and Reporting Program:

1. On July 9, 2004, the Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board or Board) adopted Order No. R3-2004-0117, the "Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands" that includes a Monitoring and Reporting Program (No. R3-2004-0117), waiving waste discharge requirements for discharges of waste from irrigated lands in the Central Coast Region (2004 Agricultural Order) and adopted a Negative Declaration under CEQA (2004 Negative Declaration). On July 10, 2009, the Board renewed the 2004 Agricultural Order without any substantive revisions for a term ending on July 10, 2010. On July 8, 2010, the Board renewed the 2004 Agricultural Order again without any substantive revisions for a term ending on March 31, 2011. The Central Coast Water Board did not have a quorum to take action to adopt a renewal of the 2004 Agricultural Order with modifications by the March 31, 2011 termination date. On March 29, 2011, the Executive Officer signed Executive Officer Order No. R3-2011-0208 to extend the 2004 Agricultural Order again for an additional six months, with a September 30, 2011 termination date.

2. The Central Coast Water Board has engaged in a lengthy public process to consider renewal of the 2004 Agricultural Order with modifications. Since the beginning of 2009, the Central Coast Water Board and/or staff has convened meetings with grower and environmental and community group representatives, met individually with many groups and individuals, held several public workshops and informational meetings, provided multiple documents for written comments, and prepared and circulated documents pursuant to the California Environmental Quality Act (CEQA). On November 19, 2010, the Central Coast Water Board released for public comment a draft

Order to renew the 2004 Agricultural Order with modifications (November 2010 Draft Order)and received significant numbers of comments on the Draft.

3. The Central Coast Water Board intended to hold a hearing on March 17, 2011 to consider adoption of an Order renewing the 2004 Agricultural Order with modifications. Due to Board member conflicts, the Central Coast Water Board did not have a quorum to take action to adopt a renewal of the 2004 Agricultural Order with modifications by the March 31, 2011 termination date. On March 17, 2011, the Board held a panel hearing consisting of the four current Board members who do not have a conflict. Due to time constraints, the Board continued the hearing until May 4, 2011. On May 4, 2011, the Board continued the hearing initiated on March 17, 2011, but still did not have a quorum. At the May 4, 2011 meeting, the Board decided to allow new information into the record for the Draft Agricultural Order and instructed staff to evaluate and compare the new information, and present the results of the evaluation and comparison in a subsequent staff report to the Board for the September 1, 2011 Board meeting. Staff prepared the staff report and distributed two versions- one for public comment on July 8, 2011 and a revised staff report with responses to public comments on August 16, 2011. The Board postponed the hearing scheduled for September 1, 2011 on the Draft Agricultural Order because the Board still did not have a quorum.

4. Water Code section 13223 authorizes the Central Coast Water Board to delegate any of its powers and duties to its Executive Officer except "(1) the promulgation of any regulation; (2) the issuance, modification, or revocation of any water quality control plan, water quality objectives, or waste discharge requirements; (3) the issuance, modifications, or revocation or any cease and desist order; (4) the holding of any hearing on water quality control plans; and (5) the application to the Attorney General for judicial enforcement . . .". The Central Coast Water Board has delegated to the Executive Officer all of its powers and duties except those enumerated above. Pursuant to that delegation, the Executive Officer has the power to extend the termination date of the 2004 Agricultural Order. The Order is not a regulation, water quality control plan, or waste discharge requirement, nor does it constitute the adoption of water quality objectives.

5. Water Code section 13269 authorizes the Central Coast Water Board to waive waste discharge requirements as to specific types of discharges. Water Code section 13269(f) requires that prior to renewal of any waiver that the regional board shall review the waiver at a public hearing. On July 8, 2010, the Central Coast Water Board held a public hearing to renew the 2004 Agricultural Order and extended the termination date to March 31, 2011. On March 17, 2011 and May 4, 2011, the Central Coast Water Board held additional public hearings on the waiver.

6. Water Code section 13267 authorizes the Water Board to order a monitoring program in establishing or reviewing any waste discharge requirements to investigate the quality of any waters of the state within its region. In conducting such an investigation the Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste, that could affect the quality of waters within its region, shall furnish technical or monitoring program reports. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

7. The Executive Officer is ordering dischargers of waste from irrigated lands covered by Order No. R3-2004-0117, the 2004 Agricultural Order, to implement Monitoring and Reporting Program R3-2011-0018, which supersedes and replaces Monitoring and Reporting Program No. R3-2004-0117 required by the 2004 Agricultural Order.

8. The monitoring and reports required by Monitoring and Reporting Program R3-2011-0018 are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order. The water quality effects on the region's waters are severe and widespread, and, in many cases, exceed water quality standards, where irrigated agricultural discharges are present. The information required in Monitoring and Reporting Program R3-2011-0018 will indicate the general conditions of waters receiving irrigated agricultural discharges and whether compliance with the conditions in the 2004 Agricultural Order (e.g., implementation of management measures to control nutrient, pesticide and sediment discharges) are improving water quality.

9. Monitoring and Reporting Program R3-2011-0018 provides that dischargers have the option of complying with surface receiving water quality monitoring conditions, either individually or through a cooperative monitoring program. The Central Coast Water Board encourages Dischargers to participate in a cooperative monitoring program to comply with surface receiving water quality monitoring conditions. In the development of any cooperative monitoring program fee schedule, the Central Coast Water Board encourages Dischargers to scale the assessment of fees based on relative level of waste discharge and threat to water quality.

10. This Order to Extend the Termination Date of Order No. R3-2004-0117 and require Monitoring and Reporting Program R3-2011-0018 does not modify the conditions in that Order (but issues an updated Monitoring and Reporting Program). As such, no further public hearing is necessary prior to this

extension of the termination date. Order No. R3-2004-0117 contains findings required by Water Code section 13269 and CEQA and those findings are incorporated by reference into this Order to Extend the Termination Date.

11. The adoption of this Executive Officer Order to Extend the Termination Date of Order R3-2004-0117 and require Monitoring and Reporting Program R3-2011-0018 is in the public interest because it continues the conditional waiver of waste discharge requirements to protect water quality that requires actions by dischargers to control discharges of waste and compliance with water quality standards, continues a monitoring and reporting program, and continues the payment of fees, pending the availability of a quorum of the Central Coast Water Board to adopt a renewed and modified waiver of waste discharge requirements or other order that supersedes the existing order.

12. Any person affected by this Central Coast Water Board action may petition the State Water Resources Control Board to review the action in accordance with Section 13320 of the California Water Code and CCR, Title 23, Section 2050. The State Water Board, Office of Chief Counsel, must receive the petition within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

THEREFORE IT IS ORDERED pursuant to sections 13223 and 13269 of the California Water Code:

1. The termination date of Central Coast Water Board Order No. R3-2004-0117, a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, including the requirement for a Monitoring and Reporting Program, is hereby extended until September 30, 2012.
2. No modifications are made to the terms of Order No. R3-2004-0117, but dischargers must implement Monitoring and Reporting Program Order No. R3-2011-0018, which supersedes and replaces the Monitoring and Reporting Program Order No. R3-2004-0117.
3. Any person enrolled in Order No. R3-2004-0117 is not required to submit a new notice of intent to enroll in the Order and must continue to update enrollment information to ensure its accuracy, as required by the Water Board.

CERTIFICATION

I, Roger W. Briggs, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of Executive Order No. R3-2011-0018 issued on September 30, 2011.

Roger W. Briggs, Executive Officer

EXHIBIT B

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

Recommendations for an Updated Conditional Waiver of Waste Discharge Requirements for Irrigated Agricultural Waste Discharges, Pursuant to the California Water Code

Staff Report

Report Proposing a Draft Agricultural Order
For Water Board Action

March 2011

Edmund G. Brown Jr., Governor
State of California

Linda S. Adams, Secretary
California Environmental Protection Agency

State Water Resources Control Board
http://www.waterboards.ca.gov/

Charles R. Hoppin, Chair
Frances Spivey-Weber, Vice Chair
Tam Doduc, Board Member
Dwight P. Russell, Board Member

Tom Howard, Executive Director

California Regional Water Quality Control Board
Central Coast Region
http://www.waterboards.ca.gov/centralcoast

Jeffrey S. Young, Chair
Russell M. Jeffries, Vice Chair
Monica S. Hunter, Board Member
David T. Hodgin, Board Member
John H. Hayashi, Board Member
Jean-Pierre Wolff, Board Member

Roger Briggs, Executive Officer
Michael Thomas, Assistant Executive Officer

This report was prepared under the direction of:

Angela Schroeter, Senior Engineering Geologist
Lisa Horowitz McCann, Environmental Program Manager

Assisted by the following Central Coast Water Board Staff:

Mary Adams
Monica Barricarte
Burton Chadwick
Cecile DeMartini
Katie DiSimone
Donette Dunaway
John Goni
Phil Hammer
Hector Hernandez
Mike Higgins
Corinne Huckaby
Alison Jones
Matt Keeling
Shanta Keeling
Howard Kolb
Peter Meertens
Gary Nichols
Jill North
Sorrel Marks
John Mijares
Harvey Packard
Lindsay Ringer
John Robertson
Dominic Roques
Chris Rose
Elaine Sahl
Kim Sanders
Steve Saiz
Sheila Soderberg
Dean Thomas
Thea Tryon
Karen Worcester

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LIST OF ACRONYMS/ABBREVIATIONS

ACL	Administrative Civil Liability
BAT	best available technology economically achievable
BCT	best practicable control technology currently achievable
BMP	best management practice
BPTC	best practicable treatment or control
CAC	County Agricultural Commissioner
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
Water Board	Central Coast Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
DPR	California Department of Pesticide Regulation
ECR	Existing Conditions Report
EIR	Environmental Impact Report
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FWQMP	farm water quality management plan
GQMP	groundwater quality management plan
GWMP	(local existing) groundwater management plan
GWPA	groundwater protection areas (DPR)
GWPL	groundwater protection list (DPR)
MAA	Management Agency Agreement
MCL	maximum contaminant level
MDL	method detection limit
MEP	maximum extent practicable
MP	management practice
MRP	monitoring and reporting program
NMP	nutrient management plan
NPDES	National Pollutant Discharge Elimination System
NPS Policy	State Water Board Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program
NPS	nonpoint source
PCPA	Pesticide Contamination Prevention Act

PEIR	Program Environmental Impact Report
PREC	Pesticide Regulation & Evaluation Committee (DPR)
PY	Personnel-year
RL	reporting limit
ROWD	report of waste discharge
State Water Board	State Water Resources Control Board
SVOC	semi-volatile organic compounds
SWAMP	Surface Water Ambient Monitoring Program
TMDL	Water Board Total Maximum Daily Load Program
TSS	total suspended solids
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
Waiver	conditional waiver of waste discharge requirements
Water Code	California Water Code
WDRs	waste discharge requirements
µg/l	micrograms per liter

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EXECUTIVE SUMMARY

Staff recommends that the Central Coast Water Board adopt the updated Conditional Waiver of Waste Discharge Requirements for Irrigated Agricultural Waste Discharges, Draft Order No. R3-2011-0006 (hereafter 2011 Draft Agricultural Order). The 2011 Draft Agricultural Order requires landowners and operators of irrigated agricultural lands to:

1. Minimize discharges of waste and meet, or make progress towards meeting, water quality standards and objectives.
2. Comply with conditions of waste discharge control through verification monitoring and reporting.
3. Provide accountability and transparency for the public on behalf of public resources.

Discharges of waste associated with agricultural discharges (e.g., pesticides, sediment, nutrients) are a major cause of water pollution in the Central Coast region. The water quality impairments are well documented, severe, and widespread. Nearly all beneficial uses of water are affected, and many (not all) 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.

The primary water quality issues associated with irrigated agriculture on the Central Coast Region are:

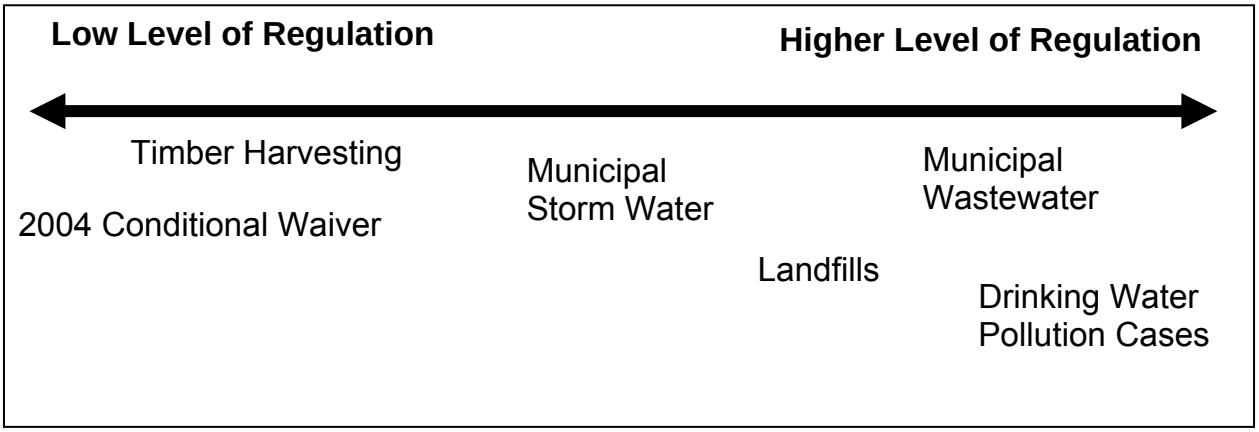
- Thousands of people are drinking water contaminated with unsafe levels of nitrate or are drinking treated or replacement water to avoid drinking contaminated water. The cost to municipalities, communities, families, and individuals for treating drinking water polluted by nitrate is estimated to be in the hundreds of millions of dollars and the health risks for drinking contaminated water are serious-- cancer, Parkinson's disease, thyroid inhibition, diabeters, endocrine disruption and Blue Baby Syndrome. Over 80% of the Central Coast population increasingly relies on groundwater, while pollutant loading also increases. This cycle is not sustainable.

- Large stretches of rivers, creeks, and streams in the Central Coast Region's major watersheds have been severely polluted by toxicity from pesticides, nutrients, and sediment. Agricultural waste discharges have caused some creeks to be found toxic (lethal to aquatic life) every time the site is sampled. As a result, these areas are often completely devoid of the aquatic life essential for a healthy functioning ecosystem. The pollution in some of these areas also creates conditions that are unsafe for recreation and fishing.

Existing and potential water quality impairment from agricultural discharges takes on added significance and urgency, given the impacts on public health, limited sources of drinking water supplies and proximity of the region's agricultural lands to critical habitat for species of concern. If the Water Board and the regulated community do not adequately address the protection of water quality and beneficial uses, the environmental and health affects will become more severe and widespread. Similarly the costs are likely to increase significantly. The environmental, health and cost impacts threaten to significantly affect the future uses of the Central Coast's water resources.

The Water Board adopted a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands in 2004 (2004 Conditional Waiver or 2004 Agricultural Order), that has been renewed twice. The 2004 Conditional Waiver expires in March 2011. In adopting the 2004 Conditional Waiver, the Water Board found that the discharge of waste from irrigated lands had impaired and polluted the waters of the State and of the United States within the Central Coast Region, impaired the beneficial uses, and caused nuisance. However, the 2004 Conditional Waiver did not try and address nitrate groundwater pollution at that time and did not include conditions consistent with typical orders to control waste discharges from industries or activities affecting water quality so severely. Figure 1 illustrates that the Water Board's current regulation of irrigated agriculture (via the 2004 Conditional Waiver) is very low relative to other programs.

Figure 1. Relative Degree of Water Board Regulation for Various Programs



Since the Water Board adopted the 2004 Conditional Waiver, some dischargers have undoubtedly improved their operations and reduced their pollutant discharges; others may not have improved, and others may have gotten worse. However, the 2004 Conditional Waiver provides no way for the Water Board and the public to directly measure these changes. The only measure is indirect; that is, general watershed-scale monitoring. This type of general monitoring is appropriate to determine if watershed-scale effects are occurring, which in fact has been confirmed; the effects are severe. This type of general monitoring is not appropriate to determine the relative contribution of pollution from individual dischargers, or changes in their discharges. Determining the relative contribution of pollution from individual dischargers is the necessary next step to resolve the severe water quality problems, and is a key component of staff's current proposal, as reflected in the tiering structure and requirements (such as individual monitoring for Tier 3 dischargers).

When staff began the renewal process, we described our intent to directly address the major water quality issues. The Executive Officer's December 2008 letter to stakeholders is available on the Water Board's website:
http://www.swrcb.ca.gov/rwqcb3/water_issues/programs/ag_waivers/docs/ag_order/letter_invitation_12_08.pdf

The Executive Officer's December 2008 letter states:

> *When we bring the Irrigated Ag Order to the Water Board for consideration in 2009, I will propose specific revisions to clarify existing requirements, and new requirements where necessary to directly address and resolve the major water quality issues associated with irrigated agriculture in our Region. These revisions will include time schedules to achieve compliance, milestones, and compliance verification monitoring to address each issue (surface and groundwater pollution, erosion and sedimentation, and habitat degradation). This letter briefly summarizes the main water quality issues we will address, and requests your participation in a series of meetings with us to discuss the Irrigated Ag Order revisions I will propose to the Water Board in July 2009.*

For the current renewal process, staff sought input from a wide group of stakeholders, which has increased the complexity of the process, and understandably has increased the tensions involved in drafting a meaningful Order. As a result of our current process, we now have many more divergent views on how comprehensive the requirements in the renewed Order should be. This is apparent from the many meetings we have attended and the comments submitted. A list of staff's outreach efforts is provided on the Water Board's website: http://www.swrcb.ca.gov/rwqcb3/water_issues/programs/ag_waivers/docs/ag_order/outreach_010711.pdf

During our two-year renewal process for the 2011 Draft Agricultural Order, we developed the requirements and conditions in the Order to address water quality issues, be consistent with Water Board direction, and to be responsive to public input where possible.

Water quality goals for the 2011 Draft Agricultural Order include:

- Eliminate toxic discharges of agricultural pesticides to surface waters and groundwater;
- Reduce nutrient discharges to surface waters to meet nutrient standards;
- Reduce nutrient discharges to groundwater to meet groundwater standards
- Minimize sediment discharges from agricultural lands;
- Protect aquatic habitat;
- Resolve water quality impairments associated with irrigated agriculture;
- Comply with minimum statutory requirements; and
- Establish milestones, targets, and schedules for achieving water quality standards and protecting beneficial uses.
- Establish transparent discharger monitoring and reporting to verify compliance with water quality standards.

Staff also identified the following key concepts as important to stakeholders and Water Board members from review of stakeholder and Board member input:

- Prioritize based on water quality affects and make protection of human health and drinking water the highest priority;
- "One size does not fit all." Require more of those discharging the most, creating the greatest affects, or most threatening water quality;
- Provide reasonable timeframes to control waste discharges and meet water quality goals;
- Require reasonable amount of implementation, monitoring and reporting requirements;

- Allow dischargers flexibility to comply with requirements based on uniqueness of individual operations.

With respect to protecting human health, staff considers this our top priority. The threat to rural homeowners from nitrates in domestic wells is the most important and challenging issue the Water Board and stakeholders are facing. As part of our outreach efforts, staff continues to work on informing other agencies about the severe threat to drinking water supplies. The Executive Officer's June 23, 2010 letter to public health agencies is posted on the Water Board's website:
http://www.swrcb.ca.gov/rwqcb3/NO3_letter_to_PHOs.pdf

The letter includes the following statement:

Section 116270 of the California Health and Safety Code states:

Every citizen of California has the right to pure and safe drinking water.

The 2011 Draft Agricultural Order reflects this priority by including groundwater monitoring and data submittal for all dischargers. Separate from the Agriculture Order, staff is also investigating groundwater well contamination in high risk areas for follow-up actions.

Central Coast Water Board Staff Considered Options and Alternatives

Staff considered a wide range of options based on staff research and input from stakeholders. Staff specifically considered alternatives submitted by interested persons by April 1, 2010. These alternatives included a range of conditions that scaled from low level of regulation, as discussed above, to higher level of regulation. Conditions in the alternative from OSR Enterprises and from the California Farm Bureau Federation (and other agricultural representatives) included relatively low levels of regulation. The alternative from the Environmental Defense Center (and other environmental organizations) was very similar to staff's February 1, 2010 Preliminary Draft Agricultural Order and included relatively higher levels of regulation. Staff considered these alternatives in preparing the Draft 2011 Agricultural Order distributed for public comment on November 19, 2010. The Draft 2011 Agricultural Order and its tiering structure reflect the range of alternatives submitted.

Staff further considered the Draft Central Coast Agriculture's Alternative Proposal for the Regulation of Discharges from Irrigated Agricultural Lands submitted by the California Farm Bureau Federation on behalf of seven County Farm Bureaus and numerous additional entities on December 3, 2010 (hereafter called the Farm Bureau Proposal).

Staff found that this Farm Bureau Proposal represents does not comply with basic statutory requirements and does not include requirements that will adequately protect water quality given the severity and magnitude of pollutant loading and water quality problems. However, there are elements of the Farm Bureau Proposal that may be effective, and staff incorporated those elements in its recommendation to the Water Board.

Specifically, staff identified the following limitations in the Farm Bureau Proposal:

- Monitoring:

    - Does not require monitoring that measures the effectiveness of on-farm management practices or pollutant load reduction;
    - All individual farm or operation data and information to be kept confidential;
    - Does not require individual or operation-level monitoring, but indicates it is optional for all growers, even high risk;
- Milestones and Timeframes:
    - Milestones indicate very limited progress towards meeting legal water quality standards, and many waterbodies will still exceed most legal water quality standards;
    - Long timeframes for very limited progress toward surface water quality milestones (4-10 years versus 2-3 years in Draft Ag Order);
    - No milestones or timeframes for groundwater loading or groundwater quality conditions;
- Reporting:
    - Does not include individual or farm or operation-level water quality sampling;
    - Management practice reporting includes results of surveys indicating if and which practices used, but not if effective at preventing or reducing pollution loading;
    - Includes aggregated information reporting for implementation actions (e.g. results for group of operations in a sub-watershed);
    - Content of aggregated reports unspecified (e.g. data will be collected during audits which will result in "points" based on unspecified criteria);
- Inconsistent with Plans and Policies:
    - Does not include measures of progress or achievement of legal water quality standards;
    - Does not include required measures of effectiveness of management practices;
    - Limits the Board's authority and discretion to enforce when the Board finds or measures discharges of wastes or exceedances of water quality standards by defining compliance with the "waiver" as implementation of farm water quality practices;
- Enforceability
    - The Proposal is not enforceable with respect to individual discharges of waste due the lack of specific monitoring and reporting, and the way coalitions would be set up.

Staff also identified the following benefits or improvements in the Farm Bureau Proposal:

- Contains implementation of management practices that address pollutant loading from irrigation, pesticides, sediment, and fertilizer;
- Contains surveys, audits and coalitions to assist growers to adapt and improve operations to improve water quality;
- Prioritizes operations growing crops with high potential to discharge nitrogen to surface and groundwaters (using same criteria as November 19, 2010 Draft Agricultural Order).

Staff integrated suggestions from all these alternatives where appropriate and legal in preparing this recommendation.

Central Coast Water Board Staff Recommendation

The 2011 Draft Agricultural Order groups farm operations, or dischargers, into three tiers, each tier distinguished by four criteria that indicate threat to water quality:

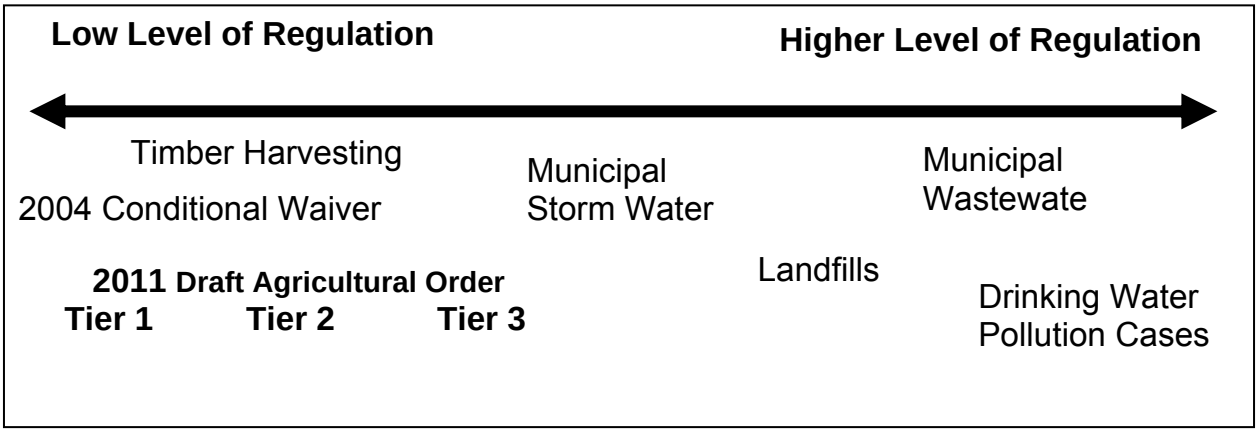
1. size of farm operation,
2. proximity to an impaired watercourse or public water system well,
3. use of chemicals of concern, and
4. type of crops grown.

These tiering criteria were selected because they provide good indicators of threat to water quality from individual operations. The Water Board uses similar criteria, based on threat to water quality, in most other programs; it is simply a water quality prioritization approach. These criteria account for surface and ground water quality conditions in the Central Coast Region, can be determined efficiently by agricultural operators and the Water Board by simple surveys of agricultural operations, and they provide a reasonable approach for scaling regulatory requirements according to actual or potential effects of waste discharges on water quality. Owners/operators do not have to collect additional data or conduct complicated or expensive site evaluations to determine which tier applies to their operations. Water Board staff can quickly verify which operations are in which tier based on recent enrollment information submitted electronically. Finally, the tiering system proposed provides for an owner or operator of agricultural lands enrolling in the Order to present additional information to justify a more appropriate tier for their operations if warranted.

2004 requirements compared to 2011 requirements: Staff found that in a general comparison with the existing 2004 Conditional Waiver, the 2011 Draft Agricultural Order Tier **1 requirements are fewer** than the requirements in the existing 2004 Conditional Waiver. **Tier 2 requirements are comparable to the 2004 Conditional Waiver, with a few additional reporting requirements** to better indicate effectiveness of management practices and reduction in pollutant loading. **Tier 3 requirements are greater** than the requirements in the 2004 Conditional Waiver, as shown in Figure 2.

Staff included this tiering structure because it provides scaled, reasonable levels of conditions and reporting appropriate to threat to water quality. Some operations present a relatively low threat to water quality, while other large operations located close to impaired water bodies or drinking water wells pose a much higher risk.

Figure 2: Relative Degree of Regulation between the 2011 Draft Agricultural Order and Other Programs



This tiering structure places a much lower burden on small family farms (likely to be in Tier 1). There are about 1200 farmers in Tier 1. Staff will work with this group to make reporting requirements as easy as possible to help maintain small farms on the Central Coast. Staff's priority focus in implementing the Order will be on Tier 2 and Tier 3, with Tier 3 the highest priority.

With respect to the other key concepts identified by the Water Board and stakeholders, the 2011 Draft Agricultural Order includes reasonable timeframes, reporting, and flexibility, all relative to the threat to water quality.

The 2011 Draft Agricultural Order proposes the following implementation and reporting requirements:

- Implement pesticide management practices to reduce toxicity in waste discharges so receiving waterbodies meet water quality standards;
- Implement nutrient management practices to eliminate or minimize nutrient and salt in waste discharges to surface water so receiving waterbodies meet water quality standards;
- Implement nutrient management practices to minimize fertilizer and nitrate loading to groundwater to meet nitrate loading targets;
- Install and properly maintain back flow prevention devices for wells or pumps that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system;
- Implement erosion control and sediment management practices to reduce sediment in waste discharges so receiving water bodies meet water quality standards;
- Protect and manage existing aquatic habitat to prevent discharge of waste to waters of the State and protect the beneficial uses of these waters;
- Implement stormwater runoff and quality management practices;
- Develop, implement, and annually-update Farm Water Quality Management Plans;

- Submit an Annual Compliance Form electronically (for higher threat dischargers) that includes individual discharge monitoring results, nitrate loading risk evaluation and, if nitrate loading risk is high, report total nitrogen applied, irrigation and nutrient management plan, verification of irrigation and nutrient management plan effectiveness;
- Submit a water quality buffer plan (for higher threat dischargers), if operations contain or are adjacent to a waterbody identified on the Clean Water Act section 303(d) List of Impaired Waterbodies as impaired for temperature or turbidity.

The Draft Monitoring and Reporting Program (Draft MRP) includes receiving water monitoring, individual surface water discharge monitoring, individual groundwater sampling, and individual riparian and wetland photo-monitoring.

The Draft MRP recommends that all dischargers in Tier 1, the lowest Tier, conduct the following monitoring:

- Receiving water monitoring- monthly and in cooperation with other dischargers, unless a discharger elects to do this individually (similar to the existing MRP)
- Groundwater sampling- two times in one year during the five years of the Draft Agricultural Order.

The Draft MRP recommends that all dischargers in Tier 2 conduct the following monitoring:

- Receiving water monitoring- same as above for Tier 1
- Groundwater sampling- same as above for Tier 1
- Individual riparian and wetland photo-monitoring- once every three years and only for operations that contain or are adjacent to a waterbody impaired for temperature, turbidity, or sediment

The Draft MRP recommends that all dischargers in Tier 3, conduct the following monitoring

- Receiving water monitoring- same as above for Tiers 1 and 2
- Groundwater sampling- quarterly for one year
- Individual riparian and wetland photo-monitoring- same as above for Tier 2
- Individual surface water discharge monitoring- four times each year for operations greater than 5000 acres and two times each year for operations between 1000 and 5000 acres for these parameters.
    - Discharge Flow measured or calculated in gallons per day;
    - Field Parameters (Temp, pH, EC);
    - Clarity measure turbidity NTUs;
    - Nutrients (Nitrate and Ammonia) concentration measured mg/L;
    - Pesticides (chlorpyrifos and/or diazinon);
    - Toxicity

Other Options Considered

In addition to considering the alternatives submitted by various stakeholders, staff also considered many other options, which are discussed in Appendix D. These options include other regulatory mechanisms, such as Waste Discharger Requirements, to effectively regulate this category of dischargers.

Recommendation

Staff recommends that the Central Coast Water Board adopt the 2011 Draft Agricultural Order, which is the updated Conditional Waiver of Waste Discharge Requirements for Irrigated Agricultural Waste Discharges, Draft Order No. R3- 2011-0006. The 2011 Draft Agricultural Order will require landowners and operators of irrigated agricultural lands to 1) control discharges of waste that affect water quality, in a timely manner, in order to meet, or make progress towards meeting, water quality standards and objectives, 2) comply with conditions of waste discharge control through verification monitoring and reporting, and 3) provide accountability and transparency for the public on behalf of public resources.

Adoption of the Draft Agricultural Order will insure healthier water quality conditions that provide people with safe drinking water and fish and other aquatic organisms with safe habitats in their streams and estuaries.

1. INTRODUCTION

The Water Board currently regulates waste discharges from irrigated lands with a Conditional Waiver of Waste Discharge Requirements (Order No. R3-2010-0040, hereafter referred to as the 2004 Conditional Waiver) that expires in March 2011. The Water Board began a process in December 2008, to consider renewing the 2004 Conditional Waiver, including revising and adding conditions to more effectively reduce or eliminate discharges of waste associated with irrigated agriculture in the Central Coast Region (toxicity, pesticides, nutrients, sediment, affects on drinking water, degradation of aquatic habitat).

There are numerous and varying irrigated agricultural operations within the Central Coast Region that have varying degrees of affect on water quality. As indicated in a December 2008 letter to stakeholders, to directly address and resolve the major water quality issues associated with irrigated agricultural discharges in the Central Coast region, Water Board staff (staff) is recommending a revised Order that includes the following:

- Clear articulation of water quality standards to ensure consistency with applicable Water Board plans and policies;
- Specific conditions to address water quality impairments;
- Milestones to measure progress;
- Time schedules to achieve compliance;
- Monitoring and reporting to verify compliance;

This report (1) summarizes the information staff have considered in the development of a renewed Order, (2) describes the range of regulatory options considered, and (3) provides staff's recommendations for a revised Draft Agricultural Order.

What is the Central Coast Water Board's regulatory role?

The Central Coast Water Board has the statutory responsibility to protect water quality and beneficial uses such as drinking water and aquatic life habitat. Any Order adopted by the Water Board must be consistent with the California Water Code (Water Code) and Water Board plans and policies, including the Water Quality Control Plan for the Central Coast Region (Basin Plan) (Cal. Wat. Code § 13269). The Water Board regulates discharges of waste to the region's surface water and groundwater to protect the beneficial uses of the water. In some cases, such as the discharge of nitrate to groundwater, the Water Board is the principle state agency with regulatory responsibility for coordination and control of water quality (Cal. Wat. Code §13001).

Pursuant to the Porter-Cologne Water Quality Control Act (Wat. Code Div. 7), the Water Board is required to regulate discharges of waste that could affect the quality of waters of the state. It can impose in orders, prohibitions on types of waste or location of discharges, requirements for discharging waste, and conditions on discharges of waste. The Water Board enforces violations of the prohibitions and requirements in these Orders. The Water Board also develops water quality standards and implements plans and programs. These activities are conducted to best

protect the State's waters, recognizing the local differences in climate, topography, geology and hydrology.

The 2004 Conditional Waiver expires in March 2011. The Water Board will consider renewing the 2004 Conditional Waiver, including revised and new conditions to assure protection of waters of the state within the Region.

One of the Water Board's highest priorities is to ensure that agricultural waste discharges do not continue to impair Central Coast communities' and residents' access to safe and reliable drinking water. This proposed Draft Agricultural Order prioritizes those agricultural operations and areas of the Central Coast Region already known to have, or be at great risk for, severe water quality pollution. The proposed Draft Agricultural Order would establish a known and reasonable time schedule, with clear and direct methods of verifying compliance and monitoring progress over time. The proposed Draft Agricultural Order must enable the regulated community and stakeholders to understand when Dischargers are in compliance with requirements and successfully reducing their contribution to the water quality problems and maintaining adequate levels of water quality protection.

What is the issue?

Agricultural waste discharges are a major cause of water pollution in the Central Coast region. The water quality impairments are well documented, severe, and widespread. Nearly all beneficial uses of water are affected, and agricultural waste discharges continue to contribute to already significantly impaired water quality and impose certain risk and significant costs to public health, drinking water supplies, aquatic life, and valued water resources.

The primary water quality issues associated with irrigated agriculture on the Central Coast are:

- Thousands of people are drinking water contaminated with unsafe levels of nitrate or are drinking treated or replacement water to avoid drinking contaminated water. The cost to municipalities, communities, families, and individuals for treating drinking water polluted by nitrate is estimated to be in the hundreds of millions of dollars;

- Large stretches of rivers, creeks, and streams in the Central Coast region's major watersheds have been severely polluted by toxicity from pesticides, nutrients, and sediment. Agricultural waste discharges have caused some creeks to be found toxic (lethal to aquatic life) almost every time the site is sampled (e.g., 4 times each year sampled for five years). As a result, these areas are often completely devoid of the aquatic life essential for a healthy functioning ecosystem. The pollution in these areas also creates conditions that are unsafe for recreation and fishing.

The Water Board has the authority and responsibility to protect water quality and beneficial uses. The regulated community has the responsibility to comply with the Water Code. Failure to do so could result in costs and other affects on water quality that are likely to increase significantly and severely limit the future of the Central Coast's water resources.

Why is the issue important?

Millions of Central Coast residents depend on groundwater for nearly all their drinking water from both deep municipal supply wells and shallow domestic wells. In addition, the Central Coast Region's coastal and inland water resources are unique, special, and in some areas still of relatively high quality. The Region supports some of the most significant biodiversity of any temperate region in the world and is home to many sensitive natural habitats and species of special concern. Agricultural waste discharges continue to severely affect and threaten these resources and beneficial uses.

At the same time, the agricultural industry in the Central Coast Region is also one of the most productive and profitable agricultural regions in the nation, reflecting a gross production value of more than six billion dollars in 2008, contributing 14 percent of California's agricultural economy. For example, agriculture in Monterey County supplies 80 percent of the nation's lettuce and nearly the same percentage of artichokes and sustains an economy of 3.4 billion dollars.[1]

Resolving agricultural water quality issues will greatly benefit public health, present and future drinking water supplies, aquatic life, recreational, aesthetic and other beneficial uses. Resolving agricultural water quality issues will also require changes in farming practices, will impose increasing costs to individual farmers and the agricultural industry at a time of competing demands on farm income, regulatory compliance efforts, and food safety challenges, and may impact the local economy. No industry or individual has a legal right to pollute and degrade water quality, while everyone has a legal right to clean water. Similar to all other Dischargers, the agricultural community is responsible for identifying, preventing and resolving pollution caused by irrigated agriculture and complying with water quality requirements.

Healthy watersheds and a sustainable agricultural economy can coexist. Protecting water quality and the environment while protecting agricultural benefits and interests will require change, and may shift who bears the costs and benefits of water quality protection. Continuing to operate in a mode that causes constant or increasingly severe receiving water problems is not sustainable.

2. STAFF RECOMMENDATION

Staff recommends that the Water Board adopt the 2011 Draft Agricultural Order to control waste discharges from irrigated lands. The rationale for this recommendation is summarized below and further explained in Sections 4 and 5 and the Appendices of this report.

The 2011 Draft Agricultural Order regulates discharges of waste from irrigated lands to ensure that such dischargers are not causing or contributing to exceedances of any Regional, State, or Federal numeric or narrative water quality standard, such that all beneficial uses are protected. The 2011 Draft Agricultural Order directly addresses agricultural waste discharges – especially contaminated irrigation runoff and percolation to groundwater causing toxicity, unsafe levels of nitrate, unsafe levels of pesticides, and excessive sediment in surface waters and/or groundwater. The 2011 Draft Agricultural Order also focuses on those areas of the Central Coast Region already known to have, or at great risk for, severe water quality impairment. In addition, the 2011 Draft Agricultural Order requires all dischargers to effectively implement management practices (related to irrigation, nutrient, pesticide and sediment management) that

[1] Salinas Valley Chamber of Commerce http://atlantabrains.com/ag_industry.asp

will most likely yield the greatest amount of water quality protection. The 2011 Draft Agricultural Order includes more stringent conditions to eliminate or minimize the most severe agricultural waste discharges and includes clear and direct methods and indicators for verifying compliance and monitoring progress over time. The proposed Draft Agricultural Order also includes reasonable time schedules to eliminate or minimize degradation from all agricultural waste discharges.

Staff recognizes that the pollution caused by irrigated agriculture is significant and will not be resolved in a short time frame. Staff's priority in the short term is to take deliberate steps towards water quality improvement and eliminate or minimize agricultural waste discharges that load additional pollutants to water bodies and groundwater basins that are already polluted or at high risk of pollution.

Given the scale and severity of pollution in agricultural areas and the affects on beneficial uses, including drinking water sources, staff recommends more stringent regulation, more monitoring and more reporting so discharger data and information is more accessible to the greater public and holds individual dischargers more accountable for reducing pollution loading from individual farm operations. Additionally, Water Board implementation of this 2011 Draft Agricultural Order and compliance by dischargers will be consistent with the State Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy), specifically by providing publicly-accessible data and information, and creating greater individual discharger accountability for measurable and trackable pollution reduction. Finally, the 2011 Draft Agricultural Order will insure progress towards or achievement of water quality standards through increased control of waste discharges to waters of the State and United States.

The range of stringency of Water Board regulation varies considerably, depending on the severity of the problem. At one end of the range are individual waste discharge requirements, which impose limits on specific pollutants in the waste discharge. For example, industrial wastewater treatment facilities have strict limits on the amounts of toxic pollutants they can discharge. At the other end of the range, for waste discharges with a low threat to water quality, the Water Board may only require use of management practices. The level of regulation proposed in the 2011 Draft Agricultural Order is near the middle of this range. Staff is not advocating an immediate shift to the most stringent level of regulation, because, as mentioned above, pollution caused by irrigated agriculture will not be resolved quickly, and because increases in technology and infrastructure will take some time.

Implementation of the Agricultural Order

As with all Orders issued by the Water Board, this Draft Agricultural Order sets the framework and authority for staff to use a routine progressive enforcement strategy, consistent with the State's Nonpoint Source Pollution Control and Enforcement Policies. The Draft Agricultural Order contains several general prohibitions and conditions. It also has some conditions with explicit timeframes for specific indicators or milestones to indicate compliance. Generally, the Draft Agricultural Order requires dischargers to effectively reduce pollutant loading and waste discharges to surface and groundwater from the irrigated agricultural operations under their control or ownership.

Dischargers are legally obligated to comply with the prohibitions and conditions immediately. However, the 2011 Draft Agricultural Order, in Finding 2, also acknowledges that it will take time for pollution sources to be controlled enough to meet water quality standards in receiving water.

In practice, the Water Board can withhold enforcement for failure to meet individual general conditions immediately, if dischargers are meeting conditions of the Draft Agricultural Order regarding implementation, monitoring and reporting. To evaluate an enforcement recommendation to the Board for failure to meet one or several conditions of the Order, staff will consider documentation of data and information related to groundwater sampling, individual discharge monitoring, implementation of management practices, treatment or control measures, or changes in farming practices to achieve compliance with this Order, and compliance history. For example, one way a discharger can demonstrate compliance with a timeframe and milestone is to show that irrigation runoff from an individual operation is meeting water quality standards. However, a discharger can also show compliance with timeframes and milestones by showing improvement in the other indicators or parameters required to be measured or observed at the place where a specific condition or action is required by the Order (See content of the Annual Compliance Document in the Monitoring and Reporting Program in Attachment B). Many dischargers (such as those enrolled in stormwater discharge permits) and grant-funded project directors are evaluating or have evaluated effectiveness of their water quality improvement practices using measurements, estimations, or simple modeling of pollution load reduction. This Draft Agricultural Order will impose similar and routine regulatory requirements and compliance evaluations on agricultural dischargers as currently exists for municipal and other industrial wastewater dischargers and stormwater dischargers.

The 2011 Draft Agricultural Order is consistent with legal requirements and goals and criteria established by the Water Board for developing a revised or new Order (see Appendix I.). The 2011 Draft Agricultural Order also incorporates all comments and suggestions made by Water Board members during public workshops (see Sections 4.B. and 4.C.). Staff incorporated all of the Water Board members' suggestions in the Draft Ag Order by:

- Building on the Preliminary Draft Agricultural Order distributed on February 1, 2010;
- Making human health protection the highest priority for waste discharge control;
- Including short term actions that will immediately improve and protect drinking water;
- Targeting the most impaired areas;
- Prioritizing operations with highest risk for their waste discharge to affect water quality;
- Using prioritization criteria that provide integration of water quality impairments (their locations, severity and human health risks) with characteristics of operations that inform where and which operation are highest risk for discharging waste that affects water quality (e.g., size, crop types, fertilizer and pesticide use), thereby increasing efficiency ;
- Including more implementation, monitoring and reporting requirements for the high risk operations;
- Including specific timeframes to reduce waste discharge and pollutant loading from high risk operations;
- Including targeted monitoring and reporting to collect best information to determine reductions in waste discharges, reductions in pollutant loading, and water quality improvements in receiving surface and groundwater;
- Including reduced monitoring and reporting for operations with low risk discharges;
- Allowing proprietary information to remain in Farm Plans and only requiring reporting of information that indicates effectiveness of waste discharge control practices and reductions in pollutant loads;
- Streamlining reporting information and improving information management systems and tools so staff can more efficiently and effectively evaluate data and information so limited staff resources are focused on highest priority compliance assistance and enforcement activities;

In developing this recommendation, staff also considered and compared several options or alternatives to this 2011 Draft Agricultural Order (see Section 3.C., 4.B., 4.C., and Appendix D). These included the existing 2004 Conditional Waiver, the Preliminary Draft Agricultural Order distributed February 1, 2010, three alternatives submitted April 1, 2010- one from the California Farm Bureau Federation and other agricultural groups, one from OSR Enterprises, Inc. and one from the Monterey Coastkeeper and other environmental groups, and another alternative submitted December 3, 2010 by the California Farm Bureau Federation. Staff also considered several different options for implementation, monitoring and reporting requirements within the Draft Agricultural Order (see Section 3.C and Appendix D).

Staff's recommendation is responsive to the comments and suggestions from interested parties representing regulated agriculturalists or industry representatives, environmental protection organizations, environmental justice advocates for clean drinking water for rural residents, and several other members of the public (see Section 4.B., 4.C., 4.D., and Appendix E).

Finally, staff developed this proposed 2011 Draft Agricultural Order to address the documented severe and widespread water quality problems in the Central Coast Region, predominately unsafe levels of nitrate in groundwater used for drinking water and toxicity decimating or impairing communities of aquatic organisms (see Section 4.D. and Appendix G).

Staff recommends that the Central Coast Water Board adopt the 2011 Draft Agricultural Order, which is the updated Conditional Waiver of Waste Discharge Requirements for Irrigated Agricultural Waste Discharges, Draft Order No. R3- 2011-0006. The 2011 Draft Agricultural Order will require landowners and operators of irrigated agricultural lands to 1) control discharges of waste that affect water quality, in a timely manner, in order to meet, or make progress towards meeting, water quality standards and objectives, 2) comply with conditions of waste discharge control through verification monitoring and reporting, and 3) provide accountability and transparency for the public on behalf of public resources.

3. PROPOSED DRAFT AGRICULTURAL ORDER

A. Summary of Proposed Draft Conditions, Monitoring and Reporting Requirements

The Draft Agricultural Order establishes three tiers of conditions based on threat to water quality. The Draft Agricultural Order requires Dischargers to comply with conditions for the "tier" that applies to their operation. The tiers are based on four criteria that indicate threat to water quality: size of farm operation, proximity to an impaired surface waterbody or public water system well, use of chemicals of concern, and type of crops grown. Dischargers with the highest threat have the greatest amount of waste discharge control requirements, monitoring and reporting. Conversely, dischargers with the lowest threat have the least amount of discharger control requirements, individual monitoring and reporting. Staff estimates that approximately 377 (13%) operations covering 54% of the total irrigated crop acres in the Central Coast Region will fall into Tier 3 (highest threat); 1,367 (46%) operations covering 25% of total irrigated crop acres will

fall into Tier 2 (moderate threat); 1,256 (42%) operations covering 21% of total acres will fall into Tier 1. Tiers and the rationale for the criteria are discussed further in Section 3.C.

Dischargers must comply with the conditions and monitoring and reporting requirements for their tier. The conditions in the Draft Agricultural Order are summarized in Table 1 below.

Table 1. Summary of Required Conditions (Compliance dates are shown in Tables 3 and 4)

All Dischargers must:
Comply with applicable water quality standards for pesticide, toxicity, nutrient, sediment, turbidity, or temperature as defined in Attachment A, protect the beneficial uses of waters of the State and prevent nuisance.
Have properly maintained back flow prevention devices installed at the well or pump to prevent pollution of groundwater or surface water.
Properly destroy all abandoned groundwater wells, exploration holes or test holes.
Implement proper handling, storage, disposal and management of pesticides, fertilizer, and other chemicals to prevent or control the discharge of waste to waters of the State.
Implement source control or treatment management practices to prevent erosion, reduce stormwater runoff quantity and velocity, and hold fine particles in place.
Minimize the presence of bare soil vulnerable to erosion and soil runoff to surface waters and implement erosion control, sediment, and stormwater management practices in non-cropped areas.
Maintain existing, naturally occurring, riparian vegetative cover (such as trees, shrubs, and grasses) in aquatic habitat areas as necessary to minimize the discharge of waste; maintain riparian areas for effective streambank stabilization and erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, and wildlife support to minimize the discharge of waste.
Update an existing or develop and implement a new farm water quality management plan.
Obtain appropriate farm water quality education and technical assistance necessary to achieve compliance with this Order.
Tier 2 and Tier 3 Dischargers also must:
Submit an Annual Compliance Form electronically to provide up-to-date information so the Water Board can evaluate the effect of agricultural waste discharges on water quality, and the effectiveness of waste discharge control or pollution load reduction from implementation of management practices, treatment or control measures, or changes in farming practices to comply with this Order.

Evaluate the nitrate loading risk factor (as high, medium or low) for each ranch/farm , annually.
Conduct Photo monitoring to document the condition of perennial, intermittent, or ephemeral streams and riparian and wetland area habitat, and demonstrate compliance with Basin Plan erosion and sedimentation requirements, if have a farm/ranch that contains or is adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for sediment, temperature or turbidity.
Record total nitrogen applied for each ranch/farm if have high nitrate loading risk.
Tier 3 Dischargers also must:
Conduct individual discharge monitoring
Determine the typical crop nitrogen uptake for each crop type produced if have nitrate loading risk.
Develop and implement a certified Irrigation and Nutrient Management Plan (INMP) to meet specified nitrogen balance ratio targets if have high nitrate loading risk.
Meet the following Nitrogen Balance ratio targets or implement an alternative to demonstrate an equivalent nitrogen load reduction: for crops in annual rotation (such as a cool season vegetable in a triple cropping system), achieve a Nitrogen Balance ratio target equal to one (1); for crops occupying the ground for the entire year (e.g., strawberries or raspberries) must achieve a Nitrogen Balance ratio target equal to 1.2.
Develop a Water Quality Buffer Plan to protect listed waterbody and its associated perennial and intermittent tributaries, including adjacent wetlands as defined by the Clean Water Act, from discharges of waste, if have a farm/ranch that contains or is adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for sediment, temperature or turbidity.

Description of Monitoring

The Draft Agricultural Order proposes the following types of monitoring for Dischargers in each Tier as follows.

Tier 1: Receiving surface water monitoring and individual groundwater sampling

Tier 2: Receiving surface water monitoring, individual groundwater sampling, and individual riparian and wetland photo-monitoring

Tier 3: Receiving surface water monitoring, individual groundwater sampling, individual riparian and wetland photo-monitoring, and individual surface water discharge monitoring

B. Summary of Time Schedule for Compliance

Table 2 describes the general time schedules to comply with conditions of the Order for all dischargers. Table 3 describes the same for Tier 2 and Tier 3 Dischargers. Table 4 describes milestones..

Table 2. Time Schedule for Key Compliance Dates All Dischargers (Tier 1, Tier 2, Tier 3)

CONDITIONS	COMPLIANCE DATE[1]
Submit Notice of Intent (NOI)	Within 30 days of adoption of Order or Within 30 days acquiring ownership/ control, and prior to any discharge or commencement of activities that may cause discharge.
Submit Update to NOI	Within 30 days, upon adoption of Order and upon change
Submit Notice of Termination	Immediately, when applicable
Submit Monitoring Reports per MRP	Per date in MRP
Implement, and update as necessary, management practices to achieve compliance with this Order.	Ongoing
Protect existing aquatic habitat to prevent discharge of waste	Immediately
Submit surface receiving water quality monitoring annual report	Within one year, and annually thereafter by January 1
Develop/update and implement Farm Plan	October 1, 2012
Install and maintain adequate backflow prevention devices.	October 1, 2012
Submit groundwater sampling results and information	October 1, 2013
Properly destroy abandoned groundwater wells.	October 1, 2015

Table 3. Additional Time Schedule for Key Compliance Dates for Tier 2 and Tier 3 Dischargers

CONDITIONS	COMPLIANCE DATE
Tier 2 and Tier 3:	
Submit electronic Annual Compliance Form	October 1, 2012, and updated annually thereafter by October 1.
Submit photo documentation of riparian or wetland area habitat (if operation contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	October 1, 2012, and every four years thereafter by October 1.
Calculate Nitrate Loading Risk level and report in electronic Annual Compliance Form	October 1, 2012, and annually thereafter by October 1.
Submit total nitrogen applied in electronic Annual Compliance Form (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter by October 1.
Only Tier 3:	

Initiate individual surface water discharge monitoring	October 1, 2011
Determine Crop Nitrogen Uptake (if discharge has High Nitrate Loading Risk)	October 1, 2012
Submit individual surface water discharge monitoring data	October 1, 2013 and annually thereafter by October 1
Develop Irrigation and Nutrient Management Plan (INMP) or alternative (if discharge has High Nitrate Loading Risk)	October 1, 2013
Submit INMP elements in electronic Annual Compliance Form (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter by October 1
Achieve Nitrogen Balance Ratio target equal to one (1) for crops in annual rotation (e.g. cool season vegetables) or alternative, (if discharge has High Nitrate Loading Risk)	October 1, 2014
Achieve Nitrogen Balance Ratio target equal to 1.2 for annual crops occupying the ground for the entire year (e.g. strawberries or raspberries) or alternative, (if discharge has High Nitrate Loading Risk)	
Submit Water Quality Buffer Plan or alternative (if operation contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	October 1, 2015
Submit INMP Effectiveness Report (if discharge has High Nitrate Loading Risk)	October 1, 2015

Table 4. Milestones

MILESTONES[1]	DATE
Tier 1, Tier 2 and Tier 3:	
Measurable progress towards water quality standards in waters of the State or of the United States[1], or	Ongoing
Water quality standards met in waters of the State or of the United States.	October 1, 2015
Only Tier 3:	
Pesticide and Toxic Substances Waste Discharges to Surface Water	
- One of two individual surface water discharge monitoring samples is not toxic	*October 1, 2012*
- Two of two individual surface water discharge monitoring samples are not toxic	*October 1, 2013*

Sediment and Turbidity Waste Discharges to Surface Water *- Four individual surface water discharge monitoring samples are collected and analyzed for turbidity.* *- 75% reduction in turbidity or sediment load in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for turbidity or sediment in individual surface water discharge)*	 *October 1, 2012* *October 1, 2013*
Nutrient Waste Discharges to Surface Water *- Four individual surface water discharge monitoring samples are collected and analyzed* *- 50% load reduction in nutrients in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for nutrients in individual discharge)* *- 75% load reduction in nutrients in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for nutrients in individual surface water discharge)*	 *October 1, 2012* *October 1, 2013* *October 1, 2014*
Nitrate Waste Discharges to Groundwater *- Achieve annual reduction in nitrogen loading to groundwater based on Irrigation and Nutrient Management Plan effectiveness and load evaluation*	 *October 1, 2013 and annually thereafter*

[1] Indicators of progress towards milestones includes, but is not limited to data and information related to a) management practice implementation and effectiveness, b) treatment or control measures, c) individual discharge monitoring results, d) receiving water monitoring results, and e) related reporting.

C. Justification for Staff Recommendations and Options Considered

[NOTE TO READER:This section was added to the Staff Report and was not contained in the November 19, 2010 Staff Report.]

Staff drafted the 2011 Draft Agricultural Order based on review of data and information collected by the Water Board (e.g., Central Coast Ambient Monitoring Program water quality data), review of related literature, and information gathered through numerous discussions with agricultural representatives, environmental organization representatives, environmental justice organization representatives, agency staff, farmers and other members of the public. Staff also evaluated and compared several options (some recommended and some considered) to determine which regulatory tool, tiering criteria, conditions and requirements to recommend. The options considered and the justification for the recommended requirements are discussed in detail in

Appendix D. Where a specific recommendation is based on published information, staff referenced the source of that information directly in the 2011 Draft Agricultural Order. Where staff reasoned a recommendation using best professional judgment, the rationale for the recommendation is provided either in this Staff Report, Appendix D or in the 2011 Draft Agricultural Order. The following paragraphs summarize the justification for the main components of the 2011 Draft Agricultural Order and those areas that received the most public comment.

Recommended Regulatory Tool – Conditional Waiver of Waste Discharge Requirements

Staff considered a variety of regulatory tools (e.g. conditional waiver, individual or general waste discharge requirements) and combinations of those tools for the regulation of agricultural discharges (see Appendix D – Options Considered). Each regulatory tool can be structured to achieve protection of water quality and associated beneficial uses.

To build upon the existing 2004 Conditional Waiver, Staff recommended the continued use of a conditional waiver with the addition of tiers. Dischargers are familiar with many of the terms and conditions of the 2011 Draft Agricultural Order, since they generally build upon those contained within the existing 2004 Conditional Waiver. Staff found that it is appropriate to adopt a conditional waiver of Reports of Waste Discharge (ROWDs) and Waste Discharge Requirements (WDRs) for this category of discharges because, as a group, the discharges have the same or similar waste from the same or similar operations and use the same or similar treatment methods and management practices (e.g., source control, irrigation efficiency - reduced agricultural irrigation runoff, reduced chemical use, nutrient management, cover crops, erosion control, vegetative treatment systems, etc.). In addition, the 2011 Draft Agricultural Order provides for an efficient and effective use of Water Board resources, given the magnitude of the discharges and number of persons who discharge waste from irrigated lands. The 2011 Draft Agricultural Order and tiering structure also provides reasonable flexibility for the Dischargers who seek coverage under this Order by providing them with a reasonable time schedule and options for complying with the Water Code commensurate with the specific level of waste discharge and threat to water quality.

The 2011 Draft Agricultural Order is in the public interest because the 2011 Draft Agricultural Order requires compliance with water quality standards and includes conditions that are intended to eliminate, reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the State. In addition, the 2011 Draft Agricultural Order tiering structure focuses on the highest priority water quality issues and most severely impaired waters.

Recommended Structure for Agricultural Order - Tiers

Staff considered different tiering methods for the 2011 Draft Agricultural Order (see Appendix D – Options Considered). The 2011 Draft Agricultural Order establishes three tiers of regulation based on specific criteria selected to take into account the characteristics of a specific operation, the level of waste discharge, relative threat to water quality, and known information about local water quality conditions.

Staff developed general tiering criteria in the 2011 Draft Agricultural Order and described in detail below. These tiering criteria were selected because they provide good indicators of threat to water quality from individual operations, account for surface and ground water quality conditions in the Central Coast Region, can be determined efficiently by agricultural operators and the Water Board by simple surveys of agricultural operations, and they provide a reasonable approach for scaling regulatory requirements according to actual or potential effects

of waste discharges on water quality. Owners/operators do not have to collect additional data or conduct complicated or expensive site evaluations to determine which tier applies to their operations. Finally, the tiering system proposed provides for an owner or operator of agricultural lands enrolling in the Order to present additional information to justify a more appropriate tier for their operations if warranted. Tier 1 includes Dischargers with a very low level of waste discharge and very limited threat to water quality (similar to a low-threat discharge). Tier 2 includes Dischargers with a moderate level of waste discharge and moderate threat to water quality. Tier 3 includes Dischargers with the highest level of waste discharge and highest threat to water quality.

Staff considered requiring discharge monitoring and reporting from all Discharges to comprehensively evaluate specific quality of discharge from individual operations for the purposes of discharge characterization and establishing tiers (see p. 24 of Appendix D – Individual Discharge Characterization Monitoring). Sufficient data regarding individual discharges is currently not available such that it could be used for the purposes of tiering. Staff found that it was unreasonable to impose such discharge characterization monitoring and reporting requirements on all Dischargers. Individual discharge characterization monitoring would require a significant amount of resources by every Discharger to implement, and a significant amount of resources by Staff to evaluate. In addition, the use of individual discharge characterization monitoring would likely result in a significant amount of time necessary before the Discharger or Water Board could assign the appropriate tier, delaying the implementation of requirements.

Staff included the tiering criteria described in the 2011 Draft Agricultural Order in response to early stakeholder comments that the order must not be “one size fits all”, that the Board should consider “the scale of water quality risks and potential loading posed by smaller operations compared to larger operations”, that the Board should “impose the least requirements for areas that are not impaired”, that the Board should consider “existing indicators of risk, including the nitrate hazard index”, and specifically that the Board should consider “tiers” to scale level of requirements. In addition, staff also recommended tiering criteria to facilitate implementation of requirements to initiate focus on the highest priority operations with the greatest relative threat to water quality in the most impaired areas. Finally, staff also considered the complexity of the proposed tiering criteria with the goal of selecting criteria that enabled the Board and growers to quickly identify the appropriate tier.

Staff evaluated the number of operations and estimated total acreage that would be included in each Tier based on criteria described in the 2011 Draft Agricultural Order, and Water Board enrollment data and information from the County Agricultural Commissioners. As illustrated in Table 5, staff estimates that the fewest number of operations would be included in the proposed Tier 3 and that the most operations would be included in the moderate Tier 2. Conversely, staff estimates that the largest total acreage would be included in Tier 3 and the lowest acreage would be included in Tier 1. This is consistent with the fact that the recommended Tier 3 criteria are focused on the largest operations with relatively higher threat to water quality and Tier 1 characteristics represent lower threat, smaller operations.

Table 5. Summary of estimated number of operations and acreage in Draft Ag Order tiers.

SUMMARY	Tier 3	Tier 2	Tier 1	Total
Estimated Total Operations	377	1367	1256	3000
% Total Operations	13%	46%	42%	100%
Estimated Total Acreage	233,000	110,000	92,000	435,000
% Total Acreage	54%	25%	21%	100%

The defining characteristics for the recommended 2011 Draft Agricultural Order tiers include: 1) use of specific pesticides known to cause toxicity and surface water impairments, including chlorpyrifos and diazinon, 2) location of operation in proximity to an impaired waterbody, 3) production of crop types with high potential for nitrate loading, and 4) operation size. In addition, based on stakeholder comments on the 2011 Draft Agricultural Order received during the public comment period, staff recommends an additional tiering criterion related to location of operation in proximity to a public water system well that is polluted by nitrate. The basis for these tiering criteria is explained in detail below.

Tiering Criteria – Use of Specific Pesticides, Including Chlorpyrifos and Diazinon

Staff considers low-threat operations that do not use chemicals known to cause water quality problems as a lower priority for monitoring and reporting requirements in the 2011 Draft Agricultural Order. In the Central Coast region, there are currently forty-five Clean Water Act 303(d) impaired waterbody listings for toxicity, twenty-six listings for chlorpyrifos, and thirteen listings for diazinon. In addition, there is substantial evidence that chlorpyrifos and diazinon are major causes of severe toxicity in agricultural areas (see 2011 Draft Agricultural Order findings 58, 68-78). Thus, staff finds that Dischargers who apply these chemicals may discharge these chemicals in irrigation and stormwater runoff, and pose a relatively greater risk to water quality than those Dischargers who do not apply these chemicals. Furthermore, staff finds that Dischargers who apply these chemicals at operations adjacent to streams already impaired for toxicity and pesticides are the highest priority for monitoring and reporting requirements in the Draft Ag Order.

Staff considered including alternative or additional chemicals for use in tiering criteria. For example, staff considered using existing high risk or restricted use pesticides developed by the Department of Pesticide Regulation (DPR). At the time of staff's evaluation, many of the pesticides on these DPR lists were not in broad use locally and were not yet documented to cause toxicity or pesticide specific surface water or groundwater problems in the Central Coast region. Staff decided not to use general high risk or restricted use pesticide lists because they were not necessarily related to water quality problems in the Central Coast region and because such tiering criteria could result in an unnecessary burden to growers. Staff also considered including those specific pesticides that were in agricultural use and detected in surface waters in the Central Coast region. The list of pesticides detected in the Central Coast region is very extensive (more than 75 individual pesticides, see 2011 Draft Agricultural Order finding #69) and would result in a very complicated tiering process. To focus on priority water quality issues and provide for a less complicated tiering process, staff chose to include only those pesticides that are currently documented as a primary cause of toxicity in the Central Coast region –

chlorpyrifos and diazinon. (Relatedly, staff recommended monitoring requirements to track effects of other pesticides causing toxicity so dischargers, the Water Board or members of the public can respond to new or increasing problems from other chemicals.)

Tiering Criteria – Location of Operation in Proximity to an Impaired Surface Waterbody-

Staff considers low-threat operations in unimpaired areas as a low priority for monitoring and reporting requirements in the 2011 Draft Agricultural Order. Staff recommends proximity to impaired waterbodies as a tiering criterion, and specific monitoring and reporting requirements for Dischargers in closest proximity to impaired surface waterbodies

The proximity distance of 1000 feet is commonly used in evaluations of preliminary environmental site assessment, source water assessment, sanitary surveys to evaluate the watershed for surface water sources and vulnerability assessments for groundwater sources, and similar evaluations of potentially contaminating activities. In such examples, potentially contaminating activities within 1000 feet (or similar distance) are evaluated in the context of posing an increased threat to water quality relative to those activities outside 1000 feet. The 2011 Draft Agricultural Order prioritizes operations located near an impaired waterbody as higher priority for implementation of this Order compared to similar operations not located near an impaired waterbody.

As a related example, California Department of Health Services (CDPH) requires public water systems to identify possible contaminating activities (PCAs) that are considered potential sources of contamination within drinking water source areas (for surface water bodies and groundwater wells) and its protection zones (CDPH, 2000). Possible contaminating activities include activities associated with both microbiological and chemical contaminants. CDPH evaluates possible contaminating activities and potential risk to water sources based on risk ranking and proximity to the water source. CDPH identifies agricultural drainage from irrigated crops as a possible contaminating activity associated with a moderate to high potential risk ranking, primarily relating to chemical contaminants. In general, CDPH requires an assessment of potentially contaminating activities within the watershed for surface water sources, and recommends a distance of between 400 and 2500 feet for surface water protection zones. In the case of groundwater sources and chemical contamination, CDPH recommends a minimum radius of 1000 to 2250 feet for the purposes of assessing vulnerability to potentially contaminating activities and protecting groundwater wells.

While the purpose of the CDPH assessments are focused on evaluating risk to drinking water sources, the same methodology can be applied for the purposes of identifying and evaluating possible contaminating activities at risk for impacting any surface water or groundwater source. Efforts to conduct preliminary environmental site assessments, sanitary surveys, and environmental vulnerability assessments utilize similar methodologies.

Staff estimated the number of operations that would be included in various proximal distances to impaired surface waterbodies, based on Water Board enrollment data and information from the County Agricultural Commissioners Office (Table 6).

Table 6. Comparison of proximal distance to impaired surface waterbodies and estimated number of operations in proximal area

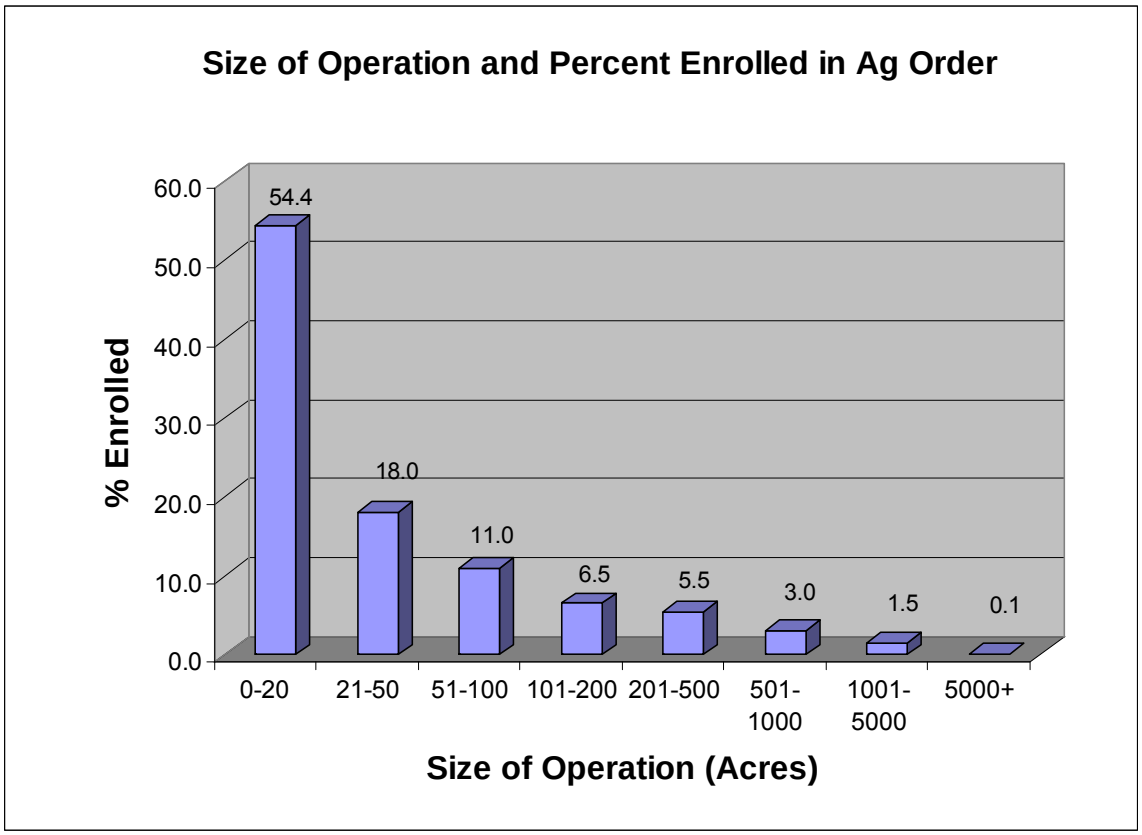
Proximal Distance to Impaired Surface Waterbody	Estimated Number of Operations	Estimated Percent of Total Operations
1000 feet	880	30%
500 feet	682	23%
250 feet	586	20%

Tiering Criteria - Production of Crop Types with High Nitrate Loading Risk and Operations greater than 1000 acres-

Nitrate pollution of groundwater drinking water supplies is a critical problem throughout the Central Coast Region (see Draft Ag Order findings 34-52). The protection of drinking water sources is among the highest priorities for this order. There is substantial evidence that specific crops (identified in Draft Ag Order finding 52) load more nitrate to groundwater relative to other crops and pose a greater threat to water quality, especially drinking water. Additional crops with high nitrate loading potential have been identified by public comments, including crops in the Brassica family with high nitrate loading potential, leafy greens with high nitrate loading potential, artichokes, beans, beets, com, cucumber, daikon, leek, onion, peas, pepper, pumpkin, potato, radishes, squash, strawberries, and tomatoes. In addition, in many cases, the production of these crops also involves the application of chlorpyrifos and diazinon, presenting additional threat to water quality. Staff prioritized operations producing these crops for specific conditions and prohibitions, including monitoring and reporting requirements.

Staff prioritized larger operations that produce crops likely to load nitrate to groundwater and using chemicals known to cause toxicity to focus initial implementation efforts. Staff acknowledges that operations less than 1000 acres may discharge similar or greater amounts of waste, and thus pose similar or greater risk to water quality. Staff estimated that 33 (2%) of approximately 1900 Dischargers enrolled in the existing 2004 Conditional Waiver have operations greater than or equal to 1000 acres (see Figure 2). Staff found it reasonable to prioritize initial implementation efforts on this limited number of dischargers who discharge a relatively high level of waste or pose a high threat to water quality. It is important to note that the 2011 Draft Agricultural Order requirements for Tier 3 Dischargers require dischargers to evaluate nitrate loading risk at the farm or ranch level and implement specific irrigation and nutrient management requirements only for those farms/ranches that have the greatest potential of nitrate loading.

Figure 3. Percent of total operations enrolled in existing Ag Order compared to size of operation in acres.



Tiering Criteria – Location of Operation in Proximity to Public Water System Polluted by Nitrate-

As stated above, nitrate pollution of groundwater drinking water supplies is a critical problem throughout the Central Coast Region (see Draft Ag Order findings 34-52). As a result, the protection of drinking water sources is among the highest priorities for this order. In the Central Coast Region, approximately 263 public water system wells exceed the drinking water standard for nitrate. In response to stakeholder comments on the Draft Ag Order received during the public comment period, staff is recommending an additional tiering criterion related to location of operation in proximity to a public water system well that is polluted by nitrate. Consistent with proximal distances recommended by the DPH for source water assessment and protection, staff is proposing an additional Tier 2 criterion that would include growers who produce crops with high potential to discharge nitrogen to groundwater and within 1000 feet of a public water system polluted by nitrate (but less than 1000 acres).

Staff evaluated the number of operations that are within 1000 feet of a public water system well with exceedances above the nitrate drinking water standard and estimates that an additional 15 operations would be included in Tier 2 (that are not already included based on other Tier 2 criteria).

Moving Between Tiers-

For tiering, the 2011 Draft Order includes a process for Dischargers to move to a different tier, if information they submit shows a lower level of discharge or lower threat to water quality. Staff clarified this issue in the 2011 Draft Agricultural Order (see condition #15). The Order states that "Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. The request must provide information to demonstrate a lower level of waste discharge and a lower threat to water quality, including site-specific operational and water quality information. Dischargers remain in the tier determined by the criteria above, and must meet all conditions for that tier until the Executive Officer approves the request to transfer to a lower tier." Thus, if the Discharger provides evidence that treatment has effectively removed pollutants from the discharge and the Discharger plans to maintain such treatment or control, then the Executive Officer can determine that this Discharger can be designated in a lower tier.

Recommended Implementation Conditions and Requirements

Staff considered a variety of conditions and requirements to regulate discharges of waste from agricultural operations (see Appendix D – Options Considered). To build upon the existing 2004 Conditional Waiver, Staff included a majority of the terms and conditions in the existing 2004 Conditional Waiver in the 2011 Draft Agricultural Order, as well as revised or new conditions to better protect water quality in agricultural areas and to better measure progress towards water quality improvement and compliance with water quality standards.

Consistent with the legal requirements and goals and criteria established by the Water Board for developing the 2011 Draft Agricultural Order and feedback from Water Board members and stakeholders, staff 1) included specific conditions and requirements such as short term actions to protect human health and prioritize protection of drinking water, 2) targeted the most impaired areas and prioritized operations with greatest potential for waste discharges to affect water quality, and 3) required less monitoring and reporting for operations with the lowest potential for waste discharges to affect water quality.

Specifically, the 2011 Draft Agricultural Order includes general prohibitions and conditions targeting priority water quality issues in agricultural areas (nitrate in groundwater, toxicity/pesticides, nutrients in surface water, sediment/turbidity) for all Dischargers with minimal monitoring and reporting for the lowest threat operations in areas without water quality impairments (Tier 1). To protect drinking water, staff included additional conditions for Tier 2 and Tier 3 dischargers to evaluate the nitrate loading risk and to report total nitrogen applied at those operations with high nitrate loading risk operations. To further protect drinking water supplies from the effects of waste discharge from operations that pose the highest threat, staff included conditions for Tier 3 operations with high nitrate loading risk to also implement an Irrigation and Nutrient Management Plan. Additionally, to prevent sediment, turbidity, and temperature waste discharges adjacent to already impaired surface waterbodies, the 201 1 Draft Agricultural Order requires the highest risk operations in Tier 3 to also implement a Water Quality Buffer Plan.

Staff found that in a general comparison with the existing 2004 Conditional Waiver, the recommended 2011 Draft Agricultural Order Tier 1 requirements represent fewer requirements than the existing 2004 Conditional Waiver. Tier 2 requirements are comparable to the 2004 Conditional Waiver, with a few additional reporting requirements to better indicate effectiveness of management practices and reduction in pollutant loading. Tier 3 requirements are greater than the 2004 Conditional Waiver. Staff recommended these implementation conditions and requirements, based upon the tiering criteria, because they are reasonable and appropriate

given the severity and magnitude of water quality problems in the agricultural areas of the Central Coast region.

Furthermore, many of the conditions in the 2011 Draft Agricultural Order are consistent with water quality management practices and measures of effectiveness or pollution loading already implemented by many growers effectively and promoted by technical experts and technical assistance providers working in the Central Coast region. Several examples follow below. Field demonstrations conducted by University of California Cooperative Extension (UCCE) documented that improved fertilizer management and efficient irrigation management practices for vegetable production significantly reduces off-site nutrient loss and that current fertilization practices can be improved without risk of crop loss (Hartz et al, 2009; Pettygrove et al, 2003). Technical assistance providers also promote minimizing and protecting bare soil areas to reduce soil erosion and waste discharge to surface water (ANR, 2004). In another example, the Central Coast Vineyard Team Sustainable in Practice (SIP) certification requires vineyard operations to implement a vegetated perimeter buffer of no less than 25 feet from the edge of perennial and intermittent streams and wetland areas to control erosion and off site movement of contaminants (Central Coast Vineyard Team, 2011). Related to groundwater quality, technical experts at the Natural Resources Conservation Service (NRCS) and University of California Division of Agriculture and Natural Resources also recommend groundwater sampling of domestic wells and irrigation wells at a frequency of once or twice a year because shallower wells are prone to short-term variations in groundwater quality and contamination (ANR, 2003).

Recommended Monitoring and Reporting Requirements

Staff considered a variety of monitoring and reporting requirements for inclusion in the 2011 Draft Agricultural Order (see Appendix D – Options Considered). To build upon the existing 2004 Conditional Waiver, staff included the continuation of surface water receiving water monitoring, implemented individually or by a cooperative monitoring program. To address drinking water protection as the highest priority for the 2011 Draft Agricultural Order, staff included basic groundwater sampling and reporting for nitrate in domestic drinking water wells and primary irrigation well at all agricultural operations. In addition, staff included basic annual reporting for moderate threat operations (Tier 2) to document status and effectiveness of waste discharge control and pollution reduction at operations and due to changes or management practices. For higher risk operations still within Tier 2 (high nitrate loading risk or operations containing or adjacent to 303(d) Listed Waterbodies impaired for sediment, turbidity, or temperature) staff included additional reporting of total nitrogen applied annually and photo monitoring, respectively.

For a limited number of the highest risk operations (Tier 3), staff included more stringent monitoring and reporting requirements related to the effective implementation of irrigation and nutrient management and water quality buffer plans, and individual discharge monitoring to evaluate waste discharge control, affects on receiving water, and progress towards milestones and compliance with the 2011 Draft Agricultural Order.

Staff finds that the recommended monitoring and reporting requirements, are commensurate with the level of waste discharge and threat to water quality with desired focus on the highest water priorities, and are reasonable and appropriate given the severity and magnitude of water quality problems in the agricultural areas of the Central Coast region. Additionally, these types of monitoring and reporting requirements are necessary for compliance and consistency with

the Water Code and State Nonpoint Source Policy requirements to include monitoring that demonstrates effectiveness of the Order, protects water quality and makes this type of information available to the public.

Recommended Milestones and Timeframes

Adequate timeframes and milestones are necessary to evaluate and ensure timely compliance and progress towards water quality improvement. Staff considered a variety of milestones and timeframes to regulate discharges of waste from agricultural operations (see Appendix D – Options Considered). The 2011 Draft Agricultural Order did not set achievement of water quality objectives in receiving waters within the timeframe of the 2011 Draft Agricultural Order, as staff recognizes that it will take time to address all sources of pollution and fully resolve the severe water quality impairments. However, the conditions and requirements in the 2011 Draft Agricultural Order include measurable indicators of progress towards meeting water quality objectives and set short timeframes so both the indicators and appropriate responses to the indicators can be evaluated and improved in the short-term, if necessary. For the subset of dischargers that pose the highest threat (Tier 3), the 2011 Draft Agricultural Order sets timeframes of two to five years to show pollutant load reduction in individual discharges to surface water and to show pollutant load reduction in discharge to groundwater. Staff's recommendation for milestones and timeframes is based upon known half-lives of pesticides known to cause toxicity (e.g. half-lives of chlorpyrifos and diazinon are significantly less than two years) and demonstrated success at reducing nutrient and sediment loading through on-farm improvements implemented as part of grant-funded projects, waste discharge control required by the Water Board and independently by individual growers.

In the case of irrigation efficiency projects, many successful grant-funded examples exist in the Central Coast Region where growers were able to significantly reduce their irrigation run-off and in some cases, completely eliminate tailwater during the irrigation season within a 3-year timeframe. Similar examples exist related to nutrient management, with resulting fertilizer efficiency and reduction in nutrient load to surface water and groundwater. For example, the Cachuma Resource Conservation District worked with a number of growers to implement an Irrigated Agriculture Best Management Practices (BMP) Implementation grant which reported the following water quality improvements over a 3-year period from 2006 - 2009: 645 tons of nitrate-nitrogen fertilizer application were eliminated; 20,710 tons of soil were prevented from entering the waterways; 276 acres of strawberries had at least 1 application of pesticide eliminated; 833 acre feet per year (ac-ft/yr) of irrigation water were conserved; 24.65 tons of nitrate-nitrogen conserved with irrigation water (Prop 50 Ag Water Quality Grant Program, 2009). Another grant project implemented at several individual vineyard operations reported average soil erosion reduction of 15 tons/acre/year measured using the RUSLE 2model over a 3-year period (Central Coast Vineyard Team, 2005). Examples also exist at the watershed scale, demonstrating effective wetland treatment of large fractions of nitrate and suspended sediment inputs with retention times of several days, and some treatment of nutrients and pesticides over longer retention times (Prop 13 NPS Grant Program, Gabilan Watershed).

In the case of nutrient management practices, there are many documented cases where growers achieved annual fertilizer application reductions by up to 50% in some cases, which significantly reduces the potential for nitrogen loading to groundwater. In addition, the effective implementation of vegetative treatment systems have demonstrated significant nitrate removal from surface water (in some cases ~50% NO3-N removed) has also been reported within the term of 3-year grant projects. In the Franklin Creek watershed in Santa Barbara County,

compliance with Water Board regulatory actions taken in 2002 led to a decline in nitrate loading from waste discharges from nurseries and greenhouses. Nitrate concentrations have been on a steady (and statistically significant) decline in Franklin Creek since then. This represents a change of approximately 30% decrease in nine years for receiving water, with an unreported but likely significant improvement in loading from individual discharges. In another location, in a small watershed where agricultural activity ceased completely (and voluntarily), a 90% decline in nitrate concentrations was documented in five years in receiving water. Complete cessation of agricultural activity is not a viable or desirable waste discharge control option, but cessation of the nitrate sources in these cases represents the magnitude of change that is possible in receiving waters and the direct cause and effect between farming practices and water quality.

While the 2011 Draft Agricultural Order provides for various alternative methods to achieve compliance, the above examples demonstrate that significant improvement can be measured within the five-year term of the 2011 Draft Agricultural Order and timeframes described within. Staff found that the recommended milestones and timeframes are reasonable and appropriate given the severity and magnitude of water quality problems in the agricultural areas of the Central Coast region.

4. DEVELOPMENT OF THE DRAFT AGRICULTURAL ORDER

A. Results of Public Outreach/Comparison of Alternatives and Proposals

Workshop Outcomes

At the Workshop on May 12, 2010, staff presented a summary of water quality conditions, preliminary draft staff recommendations, and an evaluation of the alternatives submitted that concluded the agricultural alternatives did not meet the criteria set forth by the Board nor the water quality goals and requirements that staff established as necessary for a revised order when development of the 2011 Draft Agricultural Order began prior to December 2008. Staff evaluated the Farm Bureau Proposal subsequently submitted by agricultural representatives on December 3, 2010. This proposal came closer to meeting the goals and requirements but staff concluded that the Farm Bureau Proposal does not comply with basic statutory requirements and falls short of containing requirements that will resolve the water quality problems effectively given their severity and magnitude. The Farm Bureau Proposal is discussed in detail in Appendix D. Options Considered. In summary, staff identified the following limitations in the Farm Bureau Proposal:

- Monitoring:
    - Does not require monitoring that measures the effectiveness of on-farm management practices or pollutant load reduction;
    - All individual farm or operation data and information to be kept confidential;
    - Does not require individual or operation-level monitoring, but indicates it is optional for all growers, even high risk;
- Milestones and Timeframes:

    - Milestones indicate very limited progress towards meeting legal water quality standards, and many waterbodies will still exceed most legal water quality standards;
    - Long timeframes for very limited progress toward surface water quality milestones (4-10 years versus 2-3 years in Draft Ag Order);
    - No milestones or timeframes for groundwater loading or groundwater quality conditions;
- Reporting:
    - Does not include individual or farm or operation-level water quality sampling;
    - Management practice reporting includes results of surveys indicating if and which practices used, but not if effective at preventing or reducing pollution loading;
    - Includes aggregated information reporting for implementation actions (e.g. results for group of operations in a sub-watershed);
    - Content of aggregated reports unspecified (e.g. data will be collected during audits which will result in "points" based on unspecified criteria);
- Inconsistent with Plans and Policies:
    - Does not include measures of progress or achievement of legal water quality standards;
    - Does not include required measures of effectiveness of management practices;
    - Limits the Board's authority and discretion to enforce when the Board finds or measures discharges of wastes or exceedances of water quality standards by defining compliance with the "waiver" as implementation of farm water quality practices;
- Enforceability
    - The Proposal is not enforceable with respect to individual discharges of waste due the lack of specific monitoring and reporting, and the way coalitions would be set up.

Staff also identified the following benefits or improvements in the Farm Bureau Proposal:

- Contains implementation of management practices that address pollutant loading from irrigation, pesticides, sediment, and fertilizer;
- Contains surveys, audits and coalitions to assist growers to adapt and improve operations to improve water quality.
- Prioritizes operations growing crops with high potential to discharge nitrogen to surface and groundwaters (using same criteria as November 19, 2010 Draft Agricultural Order).

The Farm Bureau Proposal is compared to the earlier alternatives in Table 7 below per the requirements and goals the Water Board and staff set for revising the 2004 Conditional Waiver. The general requirements and components for a revised Order are shown in the bold headings in the columns. The detailed information in each cell is the unique component from each alternative proposed for each of the general components for a revised Order.

Table 7. Evaluation of Alternatives[1] based on Agricultural Order Requirements[2]

Authority	Legal Requirement	Confirmation of Compliance	Point of Compliance	Milestone(s) to Measure Progress	Time to Compliance
Porter-Cologne, Basin Plan	Eliminate toxic discharges of agricultural pesticides to surface waters and groundwater	Farm Bureau: Practice survey reporting; Coalition audit aggregated summary reports; Watershed scale monitoring and reporting	Farm None Watershed scale, in stream	General management practice implementation; 50% reduction in chlorpyrifos and diazinon toxic units; meet Water Quality Objectives (WQOs)	4 years for toxic units; 8 years to meet WQOs
		OSR: Individual monitoring (no reporting); Cooperative monitoring and reporting; Practice checklist reporting; Biannual aggregated summary of implementation and water quality	None Watershed scale, in stream None None	General management practice implementation	5 years for education; 2 years for farm plan and checklist
		ENV: On- farm monitoring and reporting; Watershed scale monitoring and reporting; Farm plan compliance document reporting	Farm; Edge of farm; Watershed scale, in stream Farm; Edge of farm	Meet WQOs in discharge Various indicators of practice effectiveness to control waste discharges or reduce pollution load (e.g. reduced volume of runoff)	Within a few months Annually

Authority	Legal Requirement	Confirmation of Compliance	Point of Compliance	Milestone(s) to Measure Progress	Time to Compliance
Porter-Cologne, Basin Plan	Reduce nutrient discharges to surface waters to meet nutrient standards	Farm Bureau: Practice survey reporting; Coalition audit aggregated summary reports; Watershed scale monitoring and reporting	Farm None Watershed scale, in stream	General management practice implementation; 10% load reduction	10 years
		OSR: Individual monitoring (no reporting); Cooperative monitoring and reporting; Practice checklist reporting; Biannual aggregated summary/survey of implementation and water quality	None Watershed scale, in stream None None	General management practice implementation	5 years for education; 2 years for farm plan and checklist
		ENV: On- farm monitoring and reporting; Watershed scale monitoring and reporting; Farm plan compliance document reporting	Farm; Edge of farm; Watershed scale, in stream Farm; Edge of farm	Meet WQOs in discharge Various indicators of practice effectiveness to control waste discharges or reduce pollution load (e.g. total nitrogen applied)	4 years
		OSR: None	None	None	None

Authority	Legal Requirement	Confirmation of Compliance	Point of Compliance	Milestone(s) to Measure Progress	Time to Compliance
Porter-Cologne, Basin Plan	Reduce nutrient discharges to groundwater to meet groundwater standards	Farm Bureau: Practice survey reporting; Coalition audit aggregated summary reports; Well sampling annually (no reporting)	Farm None None	Nutrient management plan	1 year
		OSR: None	None	None	None
		ENV: On- farm monitoring and reporting Groundwater basin scale monitoring and reporting; Farm plan compliance document reporting	Farm; On-farm Basin scale, groundwater Farm; Edge of farm	Eliminate or measure reduced nitrate in discharge Various indicators of practice effectiveness to control waste discharges or reduce pollution load (e.g. total nitrogen applied)	6 years Annually
Porter-Cologne, Basin Plan	Minimize sediment discharges from agricultural lands	Farm Bureau: Practice survey reporting; Coalition audit aggregated summary reports; Watershed scale monitoring and reporting	Farm None Watershed scale, in stream	General management practice implementation 20 % load reduction	5 years
		OSR: Individual monitoring (no reporting); Cooperative monitoring and reporting;	None Watershed scale, in stream		

Authority	Legal Requirement	Confirmation of Compliance	Point of Compliance	Milestone(s) to Measure Progress	Time to Compliance
		Practice checklist reporting; Biannual aggregated summary/survey of implementation and water quality	None None	General management practice implementation	5 years for education; 2 years for farm plan and checklist
		ENV: On- farm monitoring and reporting; Watershed scale monitoring and reporting; Farm plan compliance document reporting	Farm Watershed scale, in stream Farm	Meet WQOs in discharge Various indicators of practice effectiveness to control waste discharges or reduce pollution load (e.g. vegetative cover for bare soil)	3 years

[1]Alternatives:
Farm Bureau = CA Farm Bureau Federation and other Ag Organizations, December 3, 2010 version
OSR = OSR Enterprises, Inc.
ENV = Monterey Coast keeper and other Environmental Organizations
[2]Requirements established as framework for development of Draft Ag Order in December 2008

In Table 8, below, all the alternatives and proposals submitted are compared more generally to the 2004 Conditional Waiver and 2011 Draft Agricultural Order. Each alternative, proposal or order appears in a cell in the table if the alternative, proposal or order addresses the component representing that cell. For example, all six of the alternatives, proposals or orders include some form of reporting or monitoring to confirm compliance with the requirement to "eliminate toxic discharges of agricultural pesticides to surface waters and groundwater" so their abbreviations (per the key at the bottom of Table 8) appear in the cell labeled "Confirmation of Compliance" on the same line that has "eliminate toxic discharges of agricultural pesticides to surface waters and groundwater" in the cell labeled "Legal Requirement." For another example, only the alternative submitted by Monterey Coast Keeper and other Environmental Organizations (ENV) and the 2011 Draft Agricultural Order (DRAFT) include explicit dates by which dischargers must reduce nutrient discharges to groundwater to meet groundwater standards so their abbreviations appear in the cell labeled "Time to Compliance" on the same line that has "reduce nutrient discharges to groundwater to meet groundwater standards" in the cell labeled "Legal Requirement."

Table 8. Comparison of Alternatives based on Agricultural Order Requirements

Comparison of Alternatives[1] based on Agricultural Order Requirements[2]					
Authority	**Legal Requirement**	**Confirmation of Compliance**	**Point of Compliance**	**Milestone(s) to Measure Progress**	**Time to Compliance**
Porter-Cologne, Basin Plan	Eliminate toxic discharges of agricultural pesticides to surface waters and groundwater	FARM BUREAU OSR ENV 2011 ORDER 2004 WAIVER	FARM BUREAU ENV 2011 ORDER 2004 WAIVER	FARM BUREAU OSR ENV 2011 ORDER	FARM BUREAU OSR ENV 2011 ORDER
Porter-Cologne, Basin Plan	Reduce nutrient discharges to surface waters to meet nutrient standards	FARM BUREAU OSR ENV 2011 ORDER 2004 WAIVER	FARM BUREAU ENV 2011 ORDER 2004 WAIVER	FARM BUREAU OSR ENV 2011 ORDER	FARM BUREAU OSR ENV 2011 ORDER
Porter-Cologne, Basin Plan	Reduce nutrient discharges to groundwater to meet groundwater standards	FARM BUREAU ENV 2011 ORDER 2004 WAIVER	FARM BUREAU ENV 2011 ORDER	ENV 2011 ORDER	ENV 2011 ORDER
Porter-Cologne, Basin Plan	Minimize sediment discharges from agricultural lands	FARM BUREAU OSR ENV 2011 ORDER 2004 WAIVER	FARM BUREAU ENV 2011 ORDER 2004 WAIVER	FARM BUREAU OSR ENV 2011 ORDER	FARM BUREAU OSR ENV 2011 ORDER
Porter-Cologne, Basin Plan	Protect aquatic habitat	OSR ENV 2011 ORDER 2004 WAIVER	ENV 2011 ORDER	ENV 2011 ORDER	ENV 2011 ORDER

[1]Alternatives:
Farm Bureau = CA Farm Bureau Federation and other Ag Organizations, December 3, 2010 version
OSR = OSR Enterprises, Inc.
ENV =Monterey Coast keeper and other Environmental Organizations
2011 ORDER = 2011 Draft Agricultural Order
2004 WAIVER = Existing 2004 Conditional Waiver for Irrigated Agriculture
[2]Requirements established as framework for development of Draft Ag Order in December 2008

The Board listened to public comments on the recommendations, and public presentations on proposed alternatives for regulating agricultural waste discharges. More than 375 members of the public attended the meeting and more than 80 individuals addressed the Water Board.

Proponents of the various alternatives described their alternatives to the Board. Interested persons, including regulated agricultural owners and operators, agricultural industry representatives, environmental protection agencies and organizations, environmental justice advocates for clean drinking water for rural residents, and several other members of the public, showed both support and opposition for the Order and commented on the following issues. A wide range of views were expressed on each issue:

- The effects of agricultural waste discharges on beneficial uses, including drinking water;
- Costs to clean up the nitrate being transferred to the public, increased health care costs, bottled water costs, and missing work;
- Complexity, cost, and feasibility of requirements
- Timelines to compliance;
- The collaborative process;
- Numeric requirements, streamside buffers and riparian protections;
- individual farm monitoring;
- Legality and appropriateness of the alternatives

Board members offered their own comments on what they heard at the Workshop and read in the staff reports and preliminary Draft Agricultural Order. Some of the key comments that Board members made include:

- Tiered approach and phasing are essential; we need to focus on short term actions that address drinking water concerns. The worst areas should be addressed first.
- How do we coordinate with the food safety issues?
- Will there be enough staff to analyze all the information being requested from the Ag community?
- Will we be able to protect proprietary information requested in the farm plans?
- A required education element should be considered (15 hours in five years?).
- Need reasonable timelines.
- Individual Waste Discharge Requirements might have a role.
- There should be enforcement on the remaining growers that are not enrolled.
- Water quality issues identified are real and need to be addressed; consider prioritization of the issues.
- Perhaps the next waiver should look like a ten year plan and consider other components, and lay the framework at how we are going to get at all these issues.

Board members concluded that staff should move forward with next steps considering stakeholder and Board member input from the Workshop, meeting with stakeholders further and preparing a revised Draft Agricultural Order. They also agreed to continue the Workshop at the July Board meeting in Watsonville.

On Thursday, July 8, 2010 the Water Board held a public workshop continuing the May 12 public workshop. Staff received 16 additional comment letters. These comments generally covered issues similar to the comments submitted prior to the May 12 Board Workshop and included:

General Support for Preliminary Draft Agricultural Order (over 880 letters including multiple copies of some form letters):

- Support for the process, the Agricultural Regulatory Program and preliminary draft recommendations for an updated Agricultural Order.
- Support for the prioritization of agricultural water quality and urges Water Board to take timely actions to prevent further degradation.
- Support for the regulation of agricultural waste discharges to groundwater and the protection of drinking water sources.
- Support for requirements for individual groundwater monitoring, including private domestic wells and submittal of data and technical reports.

General Concern about Preliminary Draft Agricultural Order (over 200 letters):

- Requirements will result in economic hardship.
- Requirements will result in crop yield reductions and farmers will go out of business.
- The current process is inadequate, including California Environmental Quality Act (CEQA) requirements and specifically requirements to consider the social, environmental and economic impacts, and evaluate alternatives.
- Lack of cooperation with the growers and farm organizations to develop requirements.
- Objections to proposed aquatic habitat requirements.
- Objections to individual monitoring and reporting.

At the workshop, commenters presented the following issues and made the following comments:

- Advocacy for "SMART" sampling which is similar to the current confidential on-farm monitoring that the Cooperative Monitoring Program (CMP) conducts;
- Examples of ranchers who have adapted their practices and operations in response to SMART sampling to improve water quality;
- Expert presentations on technical hurdles of reducing nitrate loading to levels protective of water quality;
- Advocacy for individual discharger monitoring and riparian protection;
- Advocacy for protecting drinking water quality and preventing related public health impacts
- Consideration of individual commodities (like strawberries);
- Need for flexibility;
- Need to evaluate technical feasibility of water quality improvements;
- Need for long timeframes;
- Include education requirements;
- Set reasonable and scientifically determined targets;
- Recognize benefits and challenges (costs and effectiveness) of riparian and vegetative buffers.
- Agricultural alternatives do not meet the criteria set forth by the Board.

Board members made the following observations:

- Affects to human health are the highest priority and need a short-term response;
- Build on original draft, and use good ideas heard at workshop;
- Support tiered approach and prioritizing where main problems are and based on commodities that are biggest risks;

- Consider recommendation to allow two years of private monitoring, and then require submittal of data and make it public;
- Focus on what staff can do in the next five years given reduced resources;
- Refine tiers beyond just impaired and unimpaired areas; also consider threats to water quality; find ways to tier requirements for groundwater affects;
- Measure trends and hope to show improvements and meeting goals;
- No need for another workshop but anyone who wants to offer information to the Board should submit it or contact staff.

Staff incorporated all of the Water Board member's suggestions in the Draft Agricultural Order by:

- Building on the preliminary Draft Agricultural Order distributed on February 1, 2010
- Making human health protection the highest priority for waste discharge control
- Including short term actions that will immediately improve and protect drinking water
- Targeting the most impaired areas
- Prioritizing operations with highest risk for their waste discharge to affect water quality
- Using prioritization criteria that provide integration of water quality impairments (their locations, severity and human health risks) with characteristics of operations that inform where and which operation are highest risk for discharging waste that affects water quality (e.g., size, crop types, fertilizer and pesticide use), thereby increasing efficiency
- Including more implementation, monitoring and reporting requirements for the high risk operations
- Including specific timeframes to reduce waste discharge and pollutant loading from high risk operations
- Including targeted monitoring and reporting to collect best information to determine reductions in waste discharges, reductions in pollutant loading, and water quality improvements in receiving surface and ground- waters
- Including reduced monitoring and reporting for operations with low risk discharges
- Allowing proprietary information to remain in Farm Plans and only requiring reporting of information that indicates effectiveness of waste discharge control practices and reductions in pollutant loads
- Streamlining reporting information and improving information management systems and tools so staff can more efficiently and effectively evaluate data and information so limited staff resources are focused on highest priority compliance assistance and enforcement activities

<u>Public Outreach Meetings</u>

Following the release of the draft report and supporting documents and continuing through September 2010, Staff participated in several outreach meetings and events. To ensure a diverse representation of stakeholders, staff initially made a deliberate effort to engage stakeholders who were not represented on the Ag Panel and who were not already actively participating in the process to renew the Agricultural Order, including technical assistance providers, municipalities, environmental justice organizations, and agricultural industry groups not yet involved. In addition to discussing potential conditions and alternatives, staff met with stakeholders to discuss water quality conditions and priorities, methods to outreach to underrepresented groups, technical considerations associated with achieving water quality standards, potential costs of compliance to agriculture and potential costs to communities

affected by agriculture. Staff also met specifically with representatives from agriculture and specific commodity groups.

Specific outreach meetings and events are shown in Table 9.

Table 9. Agricultural Order Renewal Outreach Meetings and Event

DATE	MEETING / EVENT
November 17, 2009	Staff Presentation at 2009 Sustainable Ag Expo in San Luis Obispo, sponsored by the Central Coast Vineyard Team
January 12, 2010	Staff Presentation at American Society of Agronomy Conference, California Certified Crop Advisers
February 17, 2010	Monterey Coastkeeper
February 22, 2010	Santa Cruz County, Resource Conservation District of Santa Cruz County, and Big Sur Land Trust
March 3, 2010	San Luis Obispo County Water Resources Advisory Committee
March 8, 2010	Technical Assistance Providers (University of California Cooperative Extension, Cal Poly Irrigation Training Research Center, Monterey Bay National Marine Sanctuary, Natural Resources Conservation Service, Resource Conservation District of Monterey County)
March 9, 2010	Staff Presentation to Spanish speaking growers and irrigators - Annual Monterey County Ag Expo
March 17, 2010	California Strawberry Commission
March 22, 2010	San Luis Obispo County Farm Bureau – North Coast Farm Center
March 23, 2010	The Commonwealth Scientific and Industrial Research Organization (CSIRO) and Antinetti Consulting, Inc.
March 30, 2010	Central Coast Vineyard Team, Department of Pesticide Regulation, State Water Resources Control Board, Central Valley Regional Water Quality Control Board
April 11, 2010	Executive Officer Presentation to Association of California Water Agencies on Water Quality and Water Supply
April 14, 2010	Agricultural Water Quality Alliance (Monterey Bay National Marine Sanctuary, Resource Conservation District of Monterey County, Natural Resources Conservation Service, Central Coast Agricultural Water Quality Coalition, Central Coast Water Quality Preservation, Inc., Resource Conservation District of Monterey County, University of California Cooperative Extension, AWQA RCDs)
April 28, 2010	Interagency Meeting (U.S. Environmental Protection Agency, U.S. Fish and Wildlife, California Department of Public Health, California Department of Water Resources, California Department of Food and Agriculture, California Department of Fish and Game, California State Parks, County public health agencies, County Agriculture Commissioners)
April 28, 2010	Stanford Law School – Environmental Law Clinic, Monterey Coastkeeper
April 29, 2010	Farm, Food Safety, Conservation Network
April 30, 2010	California Association of Nurseries and Garden Centers, University of California Cooperative Extension
May 12, 2010	Central Coast Water Board Public Workshop – San Luis Obispo
May 24, 2010	Staff Presentation to Spanish speaking growers - Agriculture & Land-Based Training Association
July 8, 2010	Central Coast Water Board Public Workshop – Watsonville
August 16, 2010	Multiple Agricultural Stakeholders: CA Farm Bureau Federation, County Farm Bureaus, Coalition, Grower-Shipper Association, Strawberry Commission, Central Coast Vineyard Team,and Other Agricultural Industry Representatives

August 16, 2010	Public Meeting: Scoping for California Environmental Quality Act
August 17, 2010	Environmental Defense Center, Monterey Coastkeeper, Surfrider, Santa Barbara Channelkeeper, Environmental Justice Coalition for Water
August 18, 2010	CA Association of Nurseries and Garden Centers, Nursery/Greenhouse Representatives
August 19, 2010	San Luis Obispo County Farm Bureau, Local Agricultural Representatives
September 8, 2010	California Strawberry Commission
November 10, 2010	Board Member field trip to runoff treatment sites in Monterey County
November 15, 2010	Staff Presentation at Sustainable Ag Expo in Seaside, Monterey County, sponsored by Central Coast Vineyard Team
December 1, 2010	Staff Presentation at Western Plant Health Association Conference
December 3, 2010	Staff Presentation at Cal Poly Sustainable Agriculture Conference
December 6, 2010	Staff Panel Participation At CA Farm Bureau Federation Annual Conference
December 7, 2010	The Commonwealth Scientific and Industrial Research Organization (CSIRO) and Antinetti Consulting, Inc.
December 14, 2010	California Strawberry Commission
December 15, 2010	Multiple Agricultural Stakeholders: CA Farm Bureau Federation, Santa Clara County Farm Bureau, Grower-Shipper Association, Santa Barbara County Farm Bureau, Monterey County Farm Bureau, Western Growers, Cut Flower Commission, Central Coast Vineyard Team, Central Coast Water Quality Preservation Inc. and Other Agricultural Industry Representatives
December 15, 2010	Central Coast Water Quality Preservation Inc.
January 10, 2011	Staff Presentation to San Luis Obispo County Public Health Commission
January 28, 2011	California Avocado Commission
February 3, 2011	Central Coast Water Board Public Workshop – San Luis Obispo
February 18, 2011	Environmental Defense Center, Monterey Coastkeeper, Santa Barbara Channelkeeper, San Luis Obispo Coastkeeper, Environmental Justice Coalition for Water.
February 24, 2011	Staff Presentation to Spanish speaking growers and irrigators - Annual Monterey County Ag Expo

Changes in Response to Public Input

Staff changed the Preliminary Draft Agricultural Order based on feedback received from stakeholders and included the following changes in the 2011 Draft Agricultural Order.

- removed conditions related to rainwater and containerized plants;
- clarified the intent to address irrigation runoff in the short term with immediate conditions vs. tiledrains in the long term;
- removed “tributaries” as a consideration for prioritizing farming operations in close proximity to impaired waterbodies for more stringent or immediate conditions;
- revised the table of high risk pesticides;
- revised aquatic habitat conditions;
- revised the level of prescription in conditions ;
- developed a compliance document for reporting instead of using the Farm Plan;
- included evaluations or milestones for pollutant loading in exchange, or in addition to, pollutant concentrations;
- evaluated and developed additional ways to define tiers of dischargers and associated conditions based on relative threat to water quality and apply the most stringent compliance requirements to highest threat tier;

- increased and staggered timeframes for compliance with various requirements;
- evaluated and developed additional options for monitoring and reporting that scale monitoring requirements so highest threat dischargers have more monitoring requirements than lower threat dischargers.

B. Summary of Public Comments on Draft Agricultural Order

[NOTE TO READER: THIS IS A PLACEHOLDER FOR A SUMMARY OF COMMENTS. SUMMARY WILL BE PROVIDED AS A SUPPLEMENTAL SHEET TO THE WATER BOARD.]

C. Summary of Environmental Setting and Water Quality Conditions

1. Water Resources on the Central Coast

The Central Coast Region's coastal and inland water resources are unique, special, and in some areas still of relatively high quality. Many Central Coast residents depend heavily on groundwater for drinking water from both deep municipal supply wells and shallow domestic wells. In addition, the region supports some of the most significant biodiversity of any temperate region in the world and is home to many sensitive natural habitats and species of special concern. These resources and the beneficial uses of the Central Coast water resources are severely affected or threatened by agricultural waste discharges.

Thousands of people rely on public supply wells with unsafe levels of nitrate and other pollutants. Excessive nitrate concentration in drinking water is a significant public health issue resulting in risk to infants for methemoglobinemia or "blue baby syndrome", and adverse health effects (i.e., increased risk of non-Hodgkin's, diabetes, Parkinson's disease, Alzheimers, endocrine disruption, cancer of the organs) among adults as a result of long-term consumption exposure. Staff estimates several additional thousands of people are drinking from shallow private domestic wells. Shallow groundwater is generally more directly susceptible to pollution from overlying land use. Groundwater quality data collection from shallow wells (especially agricultural or domestic drinking water wells) is not yet required and data is only broadly available, thus limiting evaluations related to potential public health risks and shorter term indications of water quality changes. For these wells, water quality is not regulated, not treated, or treated at significant cost to the well owner.

Agricultural discharges of fertilizer are the main source of nitrate contamination to groundwater based on local nitrate loading studies. In some cases, up to 30 percent of applied nitrogen may have leached to groundwater in the form of nitrate. Due to elevated concentrations of nitrate in groundwater, many public water supply systems have abandoned wells and established new wells or sources of drinking water, or are required to remove nitrate before delivery to the drinking water consumer, often, at significant cost.

Agricultural waste discharges have impaired surface water quality in the Central Coast Region, such that some creeks are found toxic (lethal to aquatic life) every time the site is sampled and as a result many areas are devoid of aquatic organisms essential to ecological systems.

Vertebrates, including fish, rely on invertebrates as a food source. Consequently, invertebrates are key indicators of stream health, and are commonly used for toxicity analyses and assessments of overall habitat condition. The majority of creeks, rivers and estuaries in the Central Coast Region are not meeting water quality standards. Most of these waterbodies are affected by agriculture. These conditions were determined and documented on the Central Coast Water Board's 2008 Clean Water Act Section 303(d) List of Impaired Waterbodies. The three main forms of pollution from agriculture are excessive runoff of pesticides and toxicity, nutrients, and sediments. In a statewide study, the Central Coast Region had the highest percentage of sites with pyrethroid pesticides detected and the highest percentage of sites exceeding toxicity limits. In addition, there are more than 46 waterbodies that exceed the nitrate water quality standard and several waterbodies routinely exceed the nitrate water quality standard by five-fold or more. In addition to causing the human health affects discussed previously, these high levels of nitrate are affecting sensitive fish species such as the threatened Steelhead, endangered Coho Salmon, by causing algae blooms that remove oxygen from water, creating conditions unsuitable for aquatic life.

The water quality conditions throughout the region are also affecting several other threatened and endangered species, including the marsh sandwort (*arenaria paludicola*), Gambel's watercress (*nasturtium rorippa gambelii*), California least tern (*sterna antillarum browni*), and red-legged frog (*Rana aurora*). The last remaining known populations of the two endangered plants, marsh sandwort and Gambel's watercress, occur in Oso Flaco Lake, are critically imperiled and depend upon the health of the Oso Flaco watershed to survive.

2. Summary of Groundwater Quality Conditions

To develop a comprehensive assessment of groundwater quality in agricultural areas throughout the Region, staff evaluated available groundwater data collected by the California Department of Water Resources, California Department of Public Health (CDPH), U.S. Geological Survey (USGS), State Water Resources Control Board (SWRCB) Groundwater Ambient Monitoring and Assessment (GAMA) Program, Lawrence Livermore National Laboratory (LLNL), local and county water resources agencies, and researchers. Although available groundwater quality data generally represent conditions at the groundwater basin and sub-basin scale, these data indicate widespread and severe nitrate affects due to agricultural land uses over a broad scale given major portions of entire groundwater basins or aquifers are severely affected with nitrate in areas subject to intensive irrigated agricultural activity. Groundwater quality data for the purposes of characterizing specific individual agricultural waste discharges are generally not available. However, a growing number of studies are available showing a direct link between irrigated agricultural practices and ongoing and significant nitrate loading to groundwater. In addition, numerous studies indicate nitrate in groundwater is the most significant water quality problem nationally, statewide and within the Region and that commercial fertilizer is the primary source of loading, particularly in areas of intensive agriculture.

The report contained within Appendix G focuses primarily on nitrogen/nitrate pollution. The report also refers to a more limited body of data that indicates irrigated agriculture is likely responsible for widespread leaching of salts and discharges of other chemicals such as pesticides with the potential to affect drinking water beneficial uses.

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An evaluation of the sources of nitrogen, nitrogen loading to groundwater from irrigated agriculture and groundwater quality conditions is detailed in Appendix G to this staff report (with references cited) and summarized below.

Sources of Nitrogen Input and Loading Analyses -

- Fertilizer accounts for approximately 69 percent of the estimated available nitrogen input regionally of the three largest sources of nitrogen within the Region related to human activities (fertilizer, human waste and livestock waste).
- Approximately 83.6 percent of the estimated nitrogen loading to groundwater in the Salinas Valley is attributable to the commercial application of agricultural fertilizers.
- Approximately 45,404 tons of nitrogen were applied on average every year for agricultural purposes within the Region between 1998 and 2008.
- Over 17,000 tons of nitrogen (75,225 tons of nitrate) has been estimated to discharge/leach to groundwater on average every year for the last ten years from irrigated agriculture in the Region. This equates to an average groundwater loading of approximately 74 pounds of nitrogen (327.5 pounds of nitrate) per cropping acre of irrigated agriculture per year.
- For lettuce, nitrogen leachate concentrations of 104.9 to 178 mg/L nitrate-N were documented in a 2009 study in the Salinas Valley. These leachate concentrations are approximately 10 to 18 times the drinking water standard (using the federal standard convention of 10 mg/L nitrate-N for comparison) and would consequently require up to 18 times as much clean groundwater flowing under the site as the water percolating down from irrigation (volume of leachate) to dilute the water to the standard. And of course up gradient water is typically not "clean," but also carries some nitrogen load. Based on 2008 and 2009 county Ag Commissioner cropping acre data, lettuce accounts for approximately 45 percent of the cropping acres in Monterey County and 38 percent in the Region. Lettuce typically requires less fertilizer-nitrogen application than the four other primary crops grown in the Region, strawberries, broccoli, cauliflower and celery.
- A 2005 report by Lawrence Livermore National Laboratory indicates that nitrate affects within the shallow aquifer of the Llagas subbasin are due to more recent fertilizer-nitrogen loading and not that of legacy farming practices or other sources. Groundwater ages in shallow aquifer wells east of Gilroy containing nitrate concentrations, exceeding twice the drinking water standard, were determined to be less than seven years old and in some locations less than two years old. Similarly, preliminary data from a 2010 LLNL special study indicated that shallow wells sampled in the Arroyo Seco area also had relatively "young" groundwater-about five years old.
- The potentially significant loading of salts to groundwater from irrigated agriculture warrants the collection and analysis of groundwater quality data for salt constituents and metrics of salinity within and around agricultural areas.

Nitrate Affects on Groundwater Beneficial Uses -

- 55 percent of the drinking water standard violations in public supply wells (for water systems with fifteen or more service connections) in the Central Coast Region were attributable to nitrate (data from Department of Water Resources).
- Approximately 9.4 percent of all public water supply wells in the Region had concentrations of nitrate in excess of the drinking water standard between 1994 and 2000.
- 18 percent of public supply wells within the Salinas Valley groundwater basin (excluding the Paso Robles subbasin), contained nitrate in excess of the drinking water standard during the period between 1979 and 2009. Excluding the Seaside, Langley and Corral de Tierra subbasins of the Salinas Valley groundwater basin that are not as intensively farmed but are subject to greater potential nitrogen loading from septic systems, the number of wells containing nitrate in excess of the drinking water standard increased to 23 percent. Approximately 37 percent of the public supply wells in the Salinas Valley contained nitrate concentrations between background levels and the drinking water standard.

- 27 percent of public supply wells in the Santa Maria groundwater basin contained nitrate in excess of the drinking water standard. 40 percent of the wells contained nitrate concentrations between background levels and the drinking water standard.
- 19 percent of the small water supply system (with two to 14 service connections) wells sampled in Monterey County exceeded the nitrate drinking water standard and 44 percent contained nitrate concentrations between background levels and the drinking water standard during the 2008-2009 fiscal year.
- 55.3 percent of the 508 domestic wells sampled in the Llagas subbasin had concentrations of nitrate in excess of the drinking water standard at levels and up to 4.5 times the drinking water standard, as well as average and median nitrate concentrations just above the drinking water standard during a voluntary nitrate sampling program conducted in 1998. Comparison of the 1998 domestic well data with three previous domestic well studies indicated that average nitrate concentrations within domestic wells in the Llagas subbasin increased steadily from 19.5 mg/L nitrate-NO_3 in 1963 to 47.7 mg/L nitrate-NO_3 in 1998. The relative percentage of wells with nitrate in excess of the drinking water standard increased from 11.3 to 55.3 percent in the Llagas subbasin during this time period.

Pesticide in Groundwater-

- 6.9 percent of wells sampled in the Region contained pesticides, although numerous well sampling data collected by DPR between 1984 and 2009 indicated pesticides are infrequently detected above preliminary health goals or drinking water standards.

3. Summary of Surface Water Quality Conditions

Surface water bodies throughout the region are degraded as evidenced by high levels of nitrates and consistent toxicity measurements. The highest nitrate concentrations and most severe toxicity occur in agricultural watersheds.

To determine surface water conditions, staff reviewed data collected by CMP and CCAMP, and conducted a review of other water quality available water quality information, for marine areas for example, in the Central Coast Region.

Surface water conditions are detailed in Attachment G to this staff report and summarized below.

Indicators of Surface Water Quality Impairment-

- Most of the same areas that showed serious contamination from agricultural pollutants five years ago are still seriously contaminated.
- The proposed 2010 Clean Water Act Section 303(d) List of Impaired Waters for the Central Coast Region (Impaired Waters List) identifies surface water impairments for approximately 167 water quality limited segments related to a variety of pollutants (e.g., salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment.
- Agricultural waste discharges most severely affect surface waterbodies in the lower Salinas and Santa Maria watersheds, both areas of intensive agricultural activity. Evaluated through a multi-metric index of water quality, 82 percent of the most degraded sites in the Central Coast Region are in these agricultural areas.

- Nitrate concentrations in areas that are most heavily affected are not improving significantly or in any widespread manner and in a number of sites in the lower Salinas/Tembladero and Santa Maria watershed areas appear to be getting worse in the last few years (from CCAMP and CMP data) .
- Thirty percent of all sites from CCAMP and CMP have average nitrate concentrations that exceed the drinking water standard, and approximately 60 percent exceed the level identified to protect aquatic life. Several of these water bodies have average nitrate concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek), the Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek), the lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain), the lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel), and the Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek).
- Toxicity is widespread in Central Coast waters, with 65 percent of all waterbodies monitored for toxicity showing some measure of lethal effect. Twenty-nine waterbodies are on the proposed 2010 Clean Water Act, Section 303(d) List of Impaired Waters because of sediment and/or water toxicity.
- Ninety percent of severely toxic sites are in agricultural areas of the lower Santa Maria and Salinas/Tembladero watershed areas.
- Waste discharges from a number of agricultural drains have shown toxicity nearly every time the drains are sampled. Researchers collaborating with CCAMP have shown that these toxic discharges can cause toxic effects in river systems that damage benthic invertebrate communities.
- Water column invertebrate toxicity is primarily associated with high concentrations of diazinon and chlorpyrifos pesticides; sediment toxicity is likely caused by chlorpyrifos and pyrethroid pesticide mixtures.
- Agricultural use of pyrethroid pesticides in the Central Coast Region and associated toxicity are among the highest in the state. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation (DPR), the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected to be toxic (42 percent), and the highest rate (by three-fold) of active ingredients applied (113 lbs/acre).
- Agricultural waste discharges contribute to sustained turbidity with many sites heavily influenced by agricultural waste discharges exceeding 100 NTUs as a median value. For comparison, most CCAMP sites have a median turbidity level of under 5 NTUs. Resulting turbidity greatly exceeds levels that affect the ability of salmonids to feed. Many of these more turbid sites are located in the lower Santa Maria and Salinas-Tembladero watersheds.
- Lack of shading in creek channels modified for agricultural purposes can cause water temperatures to exceed levels that are healthy for salmonids. Several high temperature areas are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers.
- Bioassessment data shows that creeks in areas of intensive agricultural activity have impaired benthic communities. Aquatic habitat is often poorly shaded, high in temperature, and has in-stream substrate heavily covered with sediment.
- Several Marine Protected Areas (MPAs) along the Central Coast are at risk of pollution affects from sediment and water discharges leaving river mouths. Three of the MPAs,

Elkhorn Slough, Moro Cojo Slough and Morro Bay, are estuaries that receive runoff into relatively enclosed systems. In two of these MPAs (Moro Cojo Slough and Elkhorn Slough), nitrates, pesticides and toxicity are documented problems.

- Research in the Monterey Bay area has shown that discharge of nitrate from the Salinas and Pajaro river systems can increase the initiation and development of phytoplankton blooms, and some of these blooms have resulted in the deaths of hundreds of sea birds.

Indicators of Surface Water Quality Trends -

- Some drainages in the Santa Barbara area are improving in nitrate concentrations (such as Bell Creek, which supports agricultural activities) and on Pacheco Creek in the Pajaro watershed. A number of locations in the lower Salinas and Santa Maria areas show increasing nitrate concentrations over the past five years of the CMP. However, flow volumes have declined at some of these sites, so at these locations nitrate loads may not necessarily be getting worse in spite of upward trends in concentrations;
- Dry season flow volume is declining in some areas of intensive agriculture, implying reductions in tailwater volume;
- Detailed flow analysis by the CMP showed that 18 of 27 sites in the lower Salinas and Santa Maria watersheds had statistically significant decreases in dry season flow over the first five years of the program;
- CCAMP monitoring has detected declining flows at other sites elsewhere in the Region, likely because of drought;
- Several sites along the main stem of the Salinas River showed significant increases in turbidity during the dry season; significant decreases in turbidity were seen at two locations in the Santa Maria watershed.
- One CCAMP monitoring site on the Salinas Reclamation Canal (309JON) shows statistically significant improvement in survival of invertebrate test organisms in water.

Surface Water Quality Data and Information Gaps -

- The timeframe and frequency of data collection, especially for toxicity, limit the evaluation of statistical trends for some water quality parameters in surface waterbodies;
- In-stream water quality is an effective long-term measure of water quality improvement (especially for nutrients), and more time may be necessary in some locations to identify significant change.
- In-stream water quality monitoring data is necessary to show compliance with Total Maximum Daily Loads and to list or delist waterbodies from the Clean Water Act, Section 303(d) List of Impaired Waters. These are both key Water Board management tools.
- Flow information and water quality data are not reported for agricultural waste discharges from individual farms, so correlations cannot be made between reductions in irrigation runoff or improvements in agricultural discharge quality and in-stream changes.
- Because there is no individual on-farm monitoring or reporting, it is unknown how individual farms contribute to surface water quality improvement or impairment. In addition, it is unknown if individual Dischargers are in compliance with water quality standards (given the magnitude and scale of documented affects, it is highly likely that most waste discharges are not in compliance).
- In Marine Protected Areas, there is no monitoring of sediments that carry pesticides in attached forms. Without this information it is difficult to determine if these pesticides, carried downstream attached to sediments and discharged to the ocean, harm marine life.

- Additional research could increase understanding of the affects of nutrient discharges from rivers to nearshore ocean waters.

4. Summary of Aquatic Habitat Conditions

Aquatic habitat is degraded in many areas of the region as evidenced by poor biological and physical conditions. Most surface waterbodies in agricultural watersheds are not suitable for safe recreational fishing or to support aquatic life.

To determine aquatic habitat conditions, staff reviewed data collected by CMP and CCAMP, and conducted a review of available riparian and wetland information for the Central Coast Region. While the 2004 Conditional Waiver did not specifically require aquatic habitat monitoring, it stated that cooperative monitoring of in-stream effects would enable the Water Board to assess the overall affect of agricultural waste discharges to beneficial uses, such as aquatic life and habitat. The 2004 Conditional Waiver also requires protection of beneficial uses including aquatic and wildlife habitat. The proposed 2010 order continues that requirement.

Aquatic habitat conditions are detailed in Appendix D and G to this staff report and summarized below.

Indicators of Aquatic Habitat Degradation -

- Agricultural activities result in the alteration of riparian and wetland areas, and continue to degrade the waters of the State and associated beneficial uses. Owners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops and in many areas continue to do so.
- As a result of riparian and wetland habitat degradation, watershed functions that serve to maintain high water quality, aquatic habitat and wildlife - by filtering pollutants, providing shade and protection from predators, recharging aquifers, providing flood storage capacity, have been disrupted.
- Data collected from CCAMP and CMP indicate that population characteristics of aquatic insects (benthic macroinvertebrates) important to ecological systems reflect poor water quality, degradation or lack of aquatic habitat, and poor overall watershed health at sites in areas with heavy agricultural land use. Aquatic habitat is often poorly shaded, high in temperature, and stream bottoms are heavily covered with sediment.
- The lower Salinas watershed and lower Santa Maria watersheds score low for common measures of benthic macroinvertebrate community health and aquatic habitat health.
- Unstable, bare dirt and tilled soils, highly vulnerable to erosion and stormwater runoff, are common directly adjacent to surface waterbodies in agricultural areas. Erosion and stormwater runoff from agricultural lands contribute sediment and sustained turbidity at levels that affect the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds.
- Degradation of aquatic habitat also results in water temperatures that exceed levels that are desirable for salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers.
- Real and/or perceived incompatible demands between food safety and environmental protection and subsequent actions taken by Dischargers to address food safety concerns associated with environmental features have resulted in the removal of aquatic habitat and related management practices.

- According to a Spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management practices removed. Some of these projects were funded with state grants.

Indicators of Aquatic Habitat Improvements -

- Riparian areas can improve water quality by trapping sediment and other pollutants contained in terrestrial runoff (NRC 2002; Flosi and others 1998; Pierce's Disease/Riparian Habitat Workgroup PDRHW 2000; Palone and Todd 1998). intact riparian area helps decrease rate of water flow, stores floodwaters, and dissipates stream energy, increasing infiltration (Palone and Todd 1998).
- The Watershed Institute Division of Science & Environmental Policy at California State University Monterey Bay implemented wetland restoration projects in the Gabilan Watershed and surrounding Southern Monterey Bay Watersheds. These projects increased plant and bird populations and improved water quality (removed sediment, nitrate and pesticides loading to waterbodies).
- Coastal Conservation and Research and Moss Landing Marine Laboratories implemented restoration projects in the Moro Cojo Slough. These projects reduced nitrate levels in runoff, increased plants and vertebrate populations, and supported endangered species.
- The Watershed Institute at California State University Monterey Bay and Moss Landing Marine Laboratories studied changes in stream turbidity in restoration sites in the Hansen Slough area near Watsonville. The study concluded that stream turbidity decreased by more than 50-fold and nitrate concentrations in water flowing through decreased from levels at and above 140 mg/L to levels between 5 mg/L and 40 mg/L.

5. Waste Discharges from Irrigated Agricultural Lands

Water quality of agricultural waste discharges is often poor, carrying nitrates at concentrations above safe drinking water levels and pesticides at concentrations above toxic levels to waterbodies in the region. Agricultural waste discharges contribute significantly to water quality conditions. In some cases, agricultural waste discharges are the sole or primary source of pollution in impaired waterbodies. Even in areas where agricultural is not the only source of pollution, it is a primary contributor.

Numerous studies document the affect of agricultural waste discharges on water quality and specific pollutants contained in irrigation runoff. Research conducted by the Food and Agriculture Organization of the United Nations found that irrigation return flow resulted in a significant increase in nitrogen, phosphorous, pesticide residues, and sediments. Agricultural research conducted by University of California Cooperative Extension (UCCE) found nitrate values in agricultural tailwater at 26, 53, and 75 mg/L NO3-N (up to 7.5 times the drinking water standard). UCCE researchers indicated that the high levels of nitrate at the site were likely caused by the grower injecting nitrogen fertilizer into the irrigation water during the 2nd and 3rd irrigation events. A UC Davis study of Salinas Valley farms found that by the second and third crop cycles, farm soils had begun to accumulate nitrogen, but that growers continued with the same fertilization schedule. In addition, soils are high enough in phosphorus that in some areas

no added phosphorus is necessary; however, growers continue to add this chemical to their fields. These practices lead to excess fertilizer leaving the farm, which ultimately cause significant water quality impairment. Similar to tailwater, tile drain water with elevated nitrate levels has been found draining into surface water bodies. Nitrate concentrations in selected waterbodies in the Pajaro Valley Watershed have been found to range from 19 to 89.5 mg/l NO3 as N (compared to the drinking water standard, 10 mg/l).

Pesticides have been detected in agricultural tailwater and routinely exceed the toxicity water quality standard (lethal to aquatic life). Regionwide, CCAMP and the Cooperative Monitoring Program have conducted toxicity monitoring in 80 streams and rivers. Some measure of lethal effect (as opposed to growth or reproduction effect) has been observed at 65 percent of the waterbodies monitored.

D. Summary of Environmental Analysis Pursuant to CEQA

Staff conducted an environmental analysis pursuant to the California Environmental Quality Act (CEQA). The results are summarized below and the documents are included in Appendix H. Cost considerations related to CEQA are contained in Appendix F.

In 2004, the Central Coast Water Board adopted the 2004 Agricultural Order and a Negative Declaration prepared in compliance with CEQA. CEQA Guidelines state that no subsequent environmental impact report (SEIR) shall be prepared when an EIR has been certified or negative declaration adopted for a project unless the lead agency determines based on substantial evidence in light of the whole record, one or more of the following:

> *(1) if substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects; or,*
>
> *(2) if substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental impacts or a substantial increase in the severity of previously identified significant effects; or*
>
> *(3) if new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, becomes available.*
>
> (Cal. Code Regs., tit. 14, § 15162(a).)

This regulation applies if there is a modification of a previous project. In this case, the Central Coast Water Board is proposing to renew the 2004 Agricultural Order, which is the previous project, with clarifications and new conditions. To assist in determining whether an SEIR would be necessary, the Central Coast Water Board staff held a CEQA scoping meeting on August 16, 2010 to receive input from interested persons and public agencies on potentially significant environmental effects of the proposed project. Staff also accepted written comments regarding scoping up until August 27, 2010 in order to allow for comments from those who were unable to attend the meeting and/or for those who wished to submit additional comments. Members of the public and representatives of public agencies provided comments regarding their views on significant environmental effects associated with the adoption of a renewed Agricultural Order. Prior to the scoping meeting in August, 2010, and described elsewhere in this staff report and in the Order, significant public participation activities had occurred.

In preparing the Draft SEIR, Central Coast Water Board staff reviewed the 2004 Negative Declaration, including the Initial Study (Environmental Checklist), considered the comments received during the public participation process with respect to renewal of the 2004 Agricultural Order, including evidence in the record, written and oral comments, proposed alternatives, and information provided at and following the August 16, 2010 scoping meeting, and comments received on the Draft SEIR. Review of this information did not result in identification of any new environmental effects that had not already been evaluated in the 2004 Negative Declaration. Staff identified two areas included on the Environmental Checklist where there was a potential for an increase in the severity of environmental effects previously identified. These areas are (1) the potential for more severe impacts on agricultural resources due to the potential for an increase in the use of vegetated buffer strips and economic impacts due to new requirements that could take some land out of direct agricultural use and (2) the potential for more severe impacts on biological resources due to the potential for a reduction in water flows in surface waters.

The Central Coast Water Board issued a Notice of Availability on October 25, 2010 and provided the public with 45 days to submit written comments on the Draft SEIR. The Water Board received 12 written comment letters. Responses to the comments are in Section 7 of the Final SEIR. In response to comments, the Central Coast Water Board staff revised the Draft SEIR and prepared a draft Final SEIR for the Central Coast Water Board's certification. The 2004 Negative Declaration and the Final SEIR constitute the environmental analysis under CEQA for this Order.

With respect to Agricultural Resources, the Final SEIR concludes that adoption of the proposed alternative could result in some economic or social changes but that there was insufficient evidence to conclude that the economic changes would result in adverse physical changes to the environment. Commenters speculated that the economic impacts would be so large as to result in large scale end to agriculture and that land would be sold for other uses that would result in impacts on the environment. No significant information was provided to justify that concern. As described in the Section 2.4 of this Final SEIR, the draft 2011 Agricultural Order would impose additional conditions on approximately 100 to 300 of the estimated 3000 owners or operators currently enrolled in the 2004 Agricultural Order. CEQA states that economic or social effects of a project shall not be treated as significant effects on the environment. (Pub. Res. Code § 21083.) The Final SEIR concludes that due to some new conditions, particularly the requirement that some dischargers may be required to implement vegetated buffer strips, could result in loss of land for agricultural production since the buffer strips would generally not produce crops and some land could be converted to other uses. This impact was found to be less than significant2 and that mitigation could reduce impacts further. The Central Coast Water Board may not generally specify the manner of compliance and therefore, dischargers may choose among many ways to comply with the requirement to control discharges of waste to waters of the state. Even if all dischargers who could be subject to the condition to use vegetated buffers or some other method to control discharges in the draft 2011 Agricultural Order (Tier 3 dischargers) chose to use vegetated buffers or converted to other uses, the total acreage is quite small compared to the total amount of acreage used for farming and was, therefore, found to be less than significant. In addition, since the land would be used as a vegetated buffer to comply with the Order, this would result in beneficial impacts on the environment, not adverse impacts.

With respect to Biological Resources, the Final SEIR concludes that wide scale water conservation could result in lower flows into surface water resulting in impacts on aquatic life. The Central Coast Water Board may not specify the manner of compliance so it has insufficient information to evaluate the extent to which dischargers would choose to use water conservation to comply and to evaluate potential physical changes to the environment that could result. Reduction in toxic runoff may offset impacts due to the reduced flows that could occur. In addition, reduction in water use could result in increased groundwater levels that would also result in more clean water to surface water.

Based on this information, the Final SEIR concludes that the environmental effects associated with the draft 2011 Agricultural Order may be significant with respect to biological resources. However, given the uncertainty associated with evaluating the available information, it is possible that the effects may turn out to be less than significant. In Resolution R3-2011-0006, the Central Coast Water Board has made findings consistent with the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15091) and a statement of overriding considerations (Cal. Code Regs., tit. 14, § 15093) with respect to biological resources.

E. Conclusion

Discharges of waste associated with agricultural discharges (e.g., pesticides, sediment, nutrients) are a major cause of water pollution in the Central Coast region. The water quality impairments are well documented, severe, and widespread. Nearly all beneficial uses of water are affected, and 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. Existing and potential water quality impairment from agricultural discharges takes on added significance and urgency, given the impacts on public health, limited sources of drinking water supplies and proximity of the region's agricultural lands to critical habitat for species of concern.

The Water Board and the regulated community must act to resolve these serious water quality issues and protect water quality and beneficial uses. Without adequate response, the environmental and health affects are likely to become more severe and widespread. Similarly the costs are likely to increase significantly. The environmental, health and cost impacts threaten to significantly affect the future uses of the Central Coast's water resources.

Staff recommends that the Central Coast Water Board adopt the updated Conditional Waiver of Waste Discharge Requirements for Irrigated Agricultural Waste Discharges, Draft Order No. R3-2011-0006. The Draft Order will require landowners and operators of irrigated agricultural lands to 1) control discharges of waste that affect water quality, in a timely manner, in order to meet, or make progress towards meeting, water quality standards and objectives, 2) comply with conditions of waste discharge control through verification monitoring and reporting, and 3) provide accountability and transparency for the public on behalf of public resources.

This Draft Agricultural Order will secure measurable pollutant load reduction to surface water and groundwater in the Central Coast. Adoption and implementation of the Draft Agricultural Order will insure healthier water quality conditions that provide people with safe drinking water and fish and other aquatic organisms with safe habitats in their streams and estuaries.

EXHIBIT C

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 AEROVISTA PLACE, SUITE 101
SAN LUIS OBISPO, CALIFORNIA 93401

Order No. R3-2004-0117

Conditional Waiver of Waste Discharge Requirements for Discharges From Irrigated Lands

The Central Coast Regional Water Quality Control Board finds:

1. 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. Irrigated lands are lands where water is applied for producing commercial crops and, for the purpose of this program, include, but are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors that are not currently operating under Waste Discharge Requirements (WDRs). Fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors) are not covered under this Conditional Waiver and must either eliminate all surface water discharges of pollutants or apply for Waste Discharge Requirements. Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Conditional Waiver.

2. 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.

3. Discharger means the owner and/or operator of irrigated cropland on or from which there are discharges of waste that could affect the quality of any surface water or groundwater.

4. The Central Coast Region has approximately 600,000 acres of cropland under irrigation and more than 2,500 operations that are or may be discharging waste that could affect the quality of waters of the state.

5. Waters of the state is defined in Section 13050 of the California Water Code to be any surface or groundwater within the boundaries of the state.

6. Whether an individual discharge of waste from irrigated lands may affect the quality of waters of the state depends on the quantity of the discharge, quantity of the waste, the quality of the waste, the extent of treatment, soil characteristics, distance to surface water, depth to groundwater, crop type, management practices and other site-specific factors.

7. Waste discharges from some agricultural operations have and will continue to threaten the quality of the waters of the state, as shown by the number of water bodies on the Clean Water Act Section 303(d) list of impaired water bodies that identify agriculture as a potential source, particularly in the Central Coast Region.

8. Data collected through the Central Coast Ambient Monitoring Program and other monitoring identify water quality problems in areas of irrigated agriculture throughout the Region, including in groundwater.

9. California Water Code Section 13269 allows Regional Boards to waive submission of Reports of Waste Discharge (ROWDs) and/or issuance of Waste Discharge Requirements (WDRs) if it is in the public interest. On April 15, 1983, the Regional Board approved a policy allowing waivers of WDRs for 26 categories of discharges, including irrigation return flows and non-NPDES storm water runoff.

10. On October 10, 1999, Senate Bill 390 amended California Water Code Section 13269. The amendments extended all waivers in effect on January 1, 2000, for three years to January 1, 2003, unless terminated earlier, and required all existing waivers to expire on January 1, 2003, unless renewed.

11. As amended, CWC Section 13269 authorizes the Regional Board to waive WDRs for a specific discharge or specific types of discharges if the following conditions are met: 1) the waiver is in the public interest, 2) the waiver is conditional, 3) waiver conditions include performance of individual, group, or watershed-based monitoring, except for discharges that the Regional Board determines do not pose a significant threat to water quality, 4) compliance with waiver conditions is required, and 5) a public hearing has been held. The term of a waiver cannot exceed five years, but the Regional Board can renew a waiver after holding a public hearing. The Regional Board may terminate a waiver at any time.

12. The Regional Board, in compliance with amended CWC Section 13269, reviewed the previously issued categorical waivers for irrigation return flows and non-NPDES storm water runoff and determined that additional conditions are required to protect water quality.

13. Relevant factors in determining whether a waiver is in the public interest include the following: whether the discharge is already regulated by a local governmental entity which must continue to play a major role in regulating that type of discharge; whether the Discharger is observing reasonable practices to minimize the deleterious effects of the discharge; whether a feasible treatment method exists to control the pollutants in the discharge; and whether conditionally waiving ROWDs and/or WDRs will adequately protect beneficial uses while allowing the Regional Board to utilize more of its resources to conduct field oversight, public outreach and, where necessary, enforcement. Although local government entities do not regulate water quality impacts of agricultural operations, these operations are subject to pesticide regulation and reporting. In addition, various public and private entities provide education and field assistance to growers implementing best management practices. These entities include various Resource Conservation Districts, the Monterey Bay National Marine Sanctuary, the University of California Cooperative Extension, and the programs cited in Finding 17. The Regional Board has made supplemental environmental program funds available to farm-related activities such as a watershed coordinator and monitoring, and anticipates directing further grants toward these activities, as well as to on-farm management practice implementation. Compliance with the Conditional Waiver will include reasonable management practices to minimize water quality

impacts. Management practices that reduce the amount of waste produced or contain runoff are more feasible and more effective than treatment methods and will be strongly encouraged.

14. The adoption of the Conditional Waiver is also in the public interest because (1) it includes conditions that are intended to reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the state, (2) it contains more specific and more stringent conditions for protection of water quality compared to existing regulatory programs, (3) given the number of persons who discharge waste from irrigated lands and the magnitude of acreage involved, it provides for an efficient and effective use of limited Regional Board resources, (4) it provides flexibility for the Dischargers who seek coverage under the Conditional Waiver by providing them with the option of complying with monitoring requirements through participation in cooperative monitoring programs or individually, and (5) it builds on, rather than replaces, existing efforts within the Region.

15. The Conditional Waiver provides an alternative regulatory option to adoption of WDRs for all Dischargers. Dischargers may seek coverage under this program through a tiered waiver structure. Some operations may be immediately considered for WDRs because of a past history of violations or other problems of non-compliance; however, the vast majority of operations will be allowed time to meet requirements before being considered for WDRs. The conditions of the waiver require Dischargers to comply with applicable water quality control plans and water quality objectives.

16. It is not expected that Dischargers will achieve full compliance with all of the conditions immediately. In some areas, rising groundwater with nitrate levels exceeding the drinking water standard may influence surface water concentrations substantially, making water quality improvements difficult to achieve in the short term. In others, time will be required to find the most effective combination of practices to improve water quality. The cooperative water quality monitoring program is designed to focus attention on waterbodies where objectives are not being met and allow Dischargers time to adjust practices. Although time will be allowed, increased reporting and monitoring may be required in order to ensure that water quality is improving. Even if the Regional Board were to issue WDRs to Dischargers rather than adopting this waiver, compliance schedules under California Water Code Section 13263(c) would be appropriate in most cases.

17. The Central Coast Region has benefited from the proactive approach to protecting water quality taken by several segments of the agricultural industry. Notable examples include the Agricultural Water Quality Program of the Coalition of Central Coast County Farm Bureaus (Farm Bureau Coalition) and efforts to promote sustainable wine growing practices by the Central Coast Vineyard Team and the Central Coast Winegrowers Association. Efforts are also underway to promote sustainable practices by Spanish-speaking farmers through the Rural Development Center and the Agricultural Land-Based Training Association (ALBA) in Monterey County. A consideration in developing the new regulatory program was the impact such a program would have on existing water quality protection efforts by the agricultural industry. Continuing and building on such efforts is in the public interest. Staff has worked with the agricultural and environmental communities in the Region to find areas of agreement on the broad outline of an irrigated agriculture water quality program.

How does the Conditional Waiver give "credit" to growers who have been proactive in protecting water quality?

18. Under the Monterey Bay Sanctuary's Plan for Agriculture, the Farm Bureau Coalition is organizing growers into watershed working groups who attend Farm Water Quality Planning short courses as a group and develop farm plans. The Waiver's education and plan requirements are modeled on this, so growers who are participating in the Sanctuary effort will likely be in Tier 1 (see Part IIC, "Waiver Tiers") and have fewer reporting requirements and lower costs. Growers who have completed other qualifying water quality education classes and developed plans that meet the waiver requirements will also qualify for Tier 1. Vineyards operations that have completed Positive Point System evaluations will be able to use them as part of their farm plans. Regional Board staff also recommends that growers who meet the education and planning requirements and who have already implemented substantial management practices to protect water quality have reduced monitoring costs under the cooperative monitoring program, and be considered as a "low-threat" discharge (see below).

What is the management practice checklist?

19. The management practice checklist/self-assessment is a short questionnaire that allows the Discharger to identify management practices that are being implemented for water quality protection. The Regional Board will provide a template prior to the enrollment deadline. The template will include practices for irrigation management, nutrient management, pesticide management and erosion control. Dischargers will also be able to add practices if they are known or likely to have a water quality benefit. The template will be available on-line. Tier 1 dischargers will submit an updated checklist once during the waiver cycle (five years); Tier 2 dischargers will submit a checklist annually as part of their annual report. In areas where water quality monitoring identifies problems, checklists will be used to assess whether practices need to be adjusted or whether increased implementation is needed.

What is a "low-threat" discharge?

20. A low-threat discharge is a discharge that has very low potential to impact water quality because of management practices in place. For the purposes of this Conditional Waiver a low-threat discharge category could be defined in the cost allocation structure of the cooperative monitoring program and qualify for reduced monitoring costs.

If I have no discharge, do I have to apply for a Waiver?

21. If an operation does not discharge waste that could affect water quality, then there is no need to obtain coverage under the Conditional Waiver. "Waste" includes (among other things) any residual pesticide, herbicide, or fertilizer that is not taken up or beneficially used for its intended purpose. Any discharge of waste that could percolate to groundwater or run off in tail water or stormwater is a discharge for purposes of this waiver. Waste discharges also include sediment that runs off a field (erosion) due to land disturbance activities. It is very difficult to be certain that an operation has no discharge, particularly to groundwater or during storm events; however, Dischargers that qualify for Tier 1 have fewer reporting requirements and facilities that have implemented management practices may be considered for a low-threat discharge category in the cooperative monitoring program and could have reduced monitoring costs.

What if I lease land?

22. Under the terms of the Conditional Waiver, both owners and operators of irrigated land have responsibility for compliance with the conditions of the waiver. A farm map must be submitted along with the Notice of Intent (see Part II below). Farm water quality management plans must specify management practices for the operation identified in the map. Many management practices will be operational in nature and under the direct control of the operator, while structural practices which remain in place through changes in leaseholders will more likely be the responsibility of the landowner. In the event that the Regional Board undertakes enforcement action, it is likely that both the owner and the operator will be held accountable. Owners and operators may consider delineating these responsibilities in lease agreements; however, both the owner and operator will retain full legal responsibility for complying with all provisions of the applicable waiver.

How do I apply?

23. Dischargers seeking authorization to discharge under the Conditional Waiver shall submit a complete *Notice of Intent (NOI) to Comply with the Terms of the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Land.* The Notice of Intent form will be available from the Regional Water Quality Control Board upon request and on the Regional Board's website.

24. Information that must be submitted as part of the NOI includes the location of the operation, identification of responsible parties (owners/operators), a map of the operation (should be the same as is submitted to the Agricultural Commission for pesticide use applications or equivalent), a management practice checklist/self-assessment on a template provided by the Regional Board, certification of completion of Regional Board-approved water quality education, a signed statement of farm water quality plan completion, if applicable, and which monitoring option is elected. Certificates of education and statement of plan completion will be used to evaluate which category of waiver is appropriate.

When do I apply?

25. The deadline for submitting a Notice of Intent is **January 1, 2005**. All task and milestone due dates are listed in Part IV (Provisions) of this Order. All Dischargers must apply for coverage under the conditional waiver by **January 1, 2005.**

Is a fee required?

26. Not at this time. Recently passed Senate Bill 923 authorizes the payment of fees for conditional waivers. A fee schedule may be set by the State Board based on a number of factors, including acreage, and monitoring and compliance costs. The Regional Board cannot charge fees until after the State Board adopts a fee schedule for waivers.

Is monitoring required?

27. California Water Code Section 13269 requires conditional waivers to include a monitoring program that verifies the adequacy and effectiveness of the waiver's conditions. Monitoring programs can be individual, group (cooperative), or watershed-based. As long as a Discharger

complies with all of the provisions and requirements of the waiver, if group monitoring adequately verifies that the waiver conditions adequately protect water quality, a cooperative monitoring approach satisfies Section 13269.

28. Monitoring requirements and options are described in Monitoring and Reporting Program (MRP) R3-2004-0117. All Dischargers will be required to elect a monitoring option. Dischargers may elect to perform individual monitoring or participate in cooperative monitoring. Cooperative monitoring in general offers a much less costly alternative to individual monitoring. A Discharger may change the monitoring option election at any time by submitted a revised NOI. The revised NOI must include a proposed monitoring and reporting plan (to elect individual monitoring) or a demonstration that the Discharger is participating in a cooperative monitoring program (for cooperative monitoring).

How will the cooperative monitoring program work?

29. The cooperative monitoring program, which was developed by Regional Board monitoring program staff, with input from the Agricultural Advisory Panel and researchers within the Region, will focus on currently applied agricultural constituents. The program calls for monitoring at sites located on the main stems and tributaries of rivers in the agricultural areas of the region. Monthly sampling will be conducted to analyze nutrients (nitrate, ammonia, orthophosphate) and some general parameters such as temperature, dissolved oxygen, total dissolved solids, pH, turbidity, and flow. Monthly monitoring of these constituents in a set of fixed locations will improve the Regional Board's ability to determine whether water quality is improving over time. It takes much longer to detect change, statistically speaking, with less frequent monitoring, and change detection is important for determining whether the waiver is effective. Monitoring of these conventional pollutants is less expensive than other program components, such as toxicity, and thus is a comparatively inexpensive way to increase the ability to detect improvements in water quality resulting from management practices. Data from the Regional Board's Central Coast Ambient Monitoring Program (CCAMP) shows that exceedances of these general water quality parameters are often associated with toxicity in waters affected by agricultural runoff. The cooperative monitoring program will make provision for follow-up monitoring with a certain fixed proportion of its budget, as another means of maintaining costs at a reasonable level.

30. Monitoring for individual pesticides can be expensive and does not assess additive or synergistic effects or impacts to beneficial uses. The cooperative monitoring program proposes instead to look first at in-stream effects, by performing toxicity testing at the same set of sites four times per year, twice during the irrigation season and twice during the storm season. The program will also characterize in-stream health by examination of insects and other invertebrates that live in the streams. In combination with toxicity sampling, this approach will enable the Regional Board to assess the overall impact of the discharges to beneficial uses, such as aquatic life and habitat.

31. Cooperative monitoring will allow growers to pool resources to meet monitoring requirements at a lower cost than individual monitoring. The monitoring sites will be located primarily in agricultural areas with previously identified water quality problems, but will also incorporate other monitoring efforts to provide coverage throughout the agricultural areas of the region. Regional Board staff is directed to work with the agricultural industry to assist the industry to establish or identify an existing nonprofit entity. This entity will be responsible for establishing a dues schedule, collecting funds and conducting the monitoring program adopted by the Regional Board. The Central Coast Ambient Monitoring Program will provide additional monitoring as part of its five-year rotation scheme, and monitoring data from other agencies will be

incorporated wherever possible. The nonprofit entity will also have the ability to receive grant funds and other sources of revenue to reduce costs to growers. The Regional Board strongly encourages the industry to seek available grant funds to reduce monitoring costs for participating Dischargers, either through a cooperative monitoring entity or through other eligible entities.

What will cooperative monitoring cost?

32. The total annual cost of the cooperative monitoring program is estimated to be between $900,000 and $1.0 million. The contribution of each discharger participating in the cooperative monitoring program will be based on a cost schedule developed by the agricultural industry and the nonprofit entity, as described in paragraph 31. Regional Board staff will work with the cooperative monitoring program to develop a reasonable cost to individuals based on a number of factors, including type of discharge and threat to water quality. Settlement funds and grant funds may be used to supplement resources and reduce overall costs.

33. The Regional Board encourages the cooperative monitoring program to develop reduced monitoring charges for low-threat discharges.

What are some considerations in establishing a monitoring program?

34. The monitoring program must verify the adequacy and effectiveness of the waiver's conditions. In establishing a monitoring program, the Regional Board may consider the volume, duration, frequency, and constituents of the discharge, and the extent and type of existing monitoring activities. The monitoring program can rely on other agencies' or organizations' water quality monitoring programs in lieu of establishing a separate monitoring program as long as those programs provide sufficient data of adequate quality; if other program data are of adequate quality but incomplete, the Board can still rely on the other data and limit the additional monitoring requirements to what is needed to fill data gaps.

35. There are a number of surface water quality monitoring programs in the Central Coast Region. However, few on-going programs assess impacts to beneficial uses from agricultural chemicals through chemical testing, toxicity testing or benthic invertebrate monitoring. The Regional Board's Central Coast Ambient Monitoring Program conducts relatively detailed monitoring on a five-year rotational cycle. Data from this program and others can be used to supplement the monitoring program, but will not provide sufficient data to verify the adequacy and effectiveness of the waiver, nor to detect improvements in water quality due to changes in management practices within the time frame of the waiver.

    The Regional Board recognizes that a certain amount of time will be required to put a cooperative monitoring program in place, but an unreasonable delay in monitoring will violate CWC Section 13269, which requires monitoring to verify the adequacy of the waiver's conditions. Staff will assist the agricultural industry to identify a suitable entity to manage the cooperative monitoring program. The entity must demonstrate to the Executive Officer's satisfaction that it is technically able to carry out the monitoring and reporting program (either directly or by hiring a consultant or other acceptable organization to perform monitoring and reporting) and that it has or will have adequate financial resources to do so. Demonstration of financial capability should include development of a budget which may incorporate funding from outside sources, such as grants. A dues schedule should be developed in consideration of input from the agricultural industry. The entity, working with Regional Board staff, shall advise Dischargers on the availability of the cooperative monitoring program. Each Discharger covered by the waiver is ultimately responsible for compliance and must perform individual monitoring if the cooperative monitoring

is not established. The entity will notify the Regional Board of any enrolled dischargers who cease to comply with dues schedules or other enrollment requirements; such dischargers will be considered out of compliance with the conditions of the waiver unless they begin individual monitoring immediately. Staff will provide to the agricultural industry's "monitoring subcommittee," data as part of an inventory and review of existing data and monitoring efforts. The "monitoring subcommittee" may develop an alternative monitoring protocol for consideration by the Regional Board. The Board shall hold a public hearing and consider the agricultural industry's "monitoring subcommittee's" alternative monitoring protocol. Monitoring and Reporting Program R3-2004-0117 will be implemented as proposed, beginning in the lower Salinas/Elkhorn and Santa Maria areas, and shall be implemented by January 1, 2005. Full regionwide monitoring, in accordance with MRP R3-2004-0117 or an alternative monitoring protocol approved by the Regional Board at a public hearing, shall be implemented by January 1, 2006.

36. All requirements for technical and monitoring reports are pursuant to California Water Code section 13267. These reports are necessary to evaluate each Discharger's compliance with the terms and conditions of the Conditional Waiver, to verify the adequacy and effectiveness of the waiver's conditions and to evaluate whether additional regulatory programs or enforcement actions are warranted. Failure to submit reports in accordance with schedules established by this Order, Monitoring and Reporting Program R3-2004-0117, or an individual or cooperative monitoring plan, or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer, may subject the Discharger to enforcement action pursuant to Section 13268 of the California Water Code.

Why is agriculture being required to do more monitoring than other land uses?

37. California Water Code Section 13267 requires the cost of monitoring to be reasonable in light of the information to be obtained. Identified water quality problems in agricultural areas, in conjunction with the large number of Clean Water Act 303(d) listings that identify agriculture as a potential source justify greater monitoring than is necessary for other land uses, such as urban stormwater, which is not known to be causing as high a level of regional impact. However, when water quality monitoring indicates sources other than agriculture may be contributing to a problem, the other sources will be required to provide monitoring and other information to the Regional Board.

Is groundwater monitoring required?

38. No. Existing groundwater monitoring efforts around the region will be used in lieu of any agricultural groundwater monitoring requirements.

What if groundwater already violates standards?

39. Groundwater in many agricultural areas of the region shows nitrate levels exceeding drinking water standards. Growers will not be held liable for historical conditions. Since high nitrate groundwater in agricultural areas is often used for irrigation, farm plans need to include nutrient management practices to ensure that current discharges to groundwater do not further degrade groundwater. Plans also should account for specific nitrate concentrations in irrigation water in determining agronomic nitrogen application rates.

Am I expected to contain all stormwater on my property?

40. Although there is no requirement to contain all stormwater on site, all farm plans must identify practices to reduce discharges during storm events. Operations should choose the best combination of practices to reduce and/or detain runoff, reduce erosion and reduce the discharge of sediment, nutrients and pesticides during storms. Conservation practices that could pose a threat to public safety, for example, sediment detention basins that include earthen embankments, should conform to relevant local ordinances and engineering standards. Other management practices such as cover crops, filter strips, or furrow alignment, should aim to reduce runoff quantity and velocity, hold fine particles (silt and clay) in place, and increase infiltration to minimize impacts to stormwater quality. The goal of these combined practices should be to minimize stormwater runoff for the first half inch of rain during each storm, and to reduce runoff for the first one and one-half inches of rain during each storm. There is no requirement to contain or manage waste in stormwater runoff that enters the farm from off site, but the occurrence of such runoff does not change the goal of managing waste generated on site.

What happens if a Tier 2 discharger fails to meet requirements for Tier 1 within the three year time limit?

41. Dischargers who fail to meet Tier 1 requirements within three years will be issued Waste Discharge Requirements if they have made no progress toward meeting Tier 1 requirements. Progress includes completion of five hours of water quality training each year and progress toward completion of a farm water quality plan. Prior to issuance of Waste Discharge Requirements, the Discharger may ask the Regional Board to consider extenuating circumstances, such as lack of available training and financial hardship.

Regulatory Considerations

42. 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.

43. Beneficial Uses – Existing and potential beneficial uses of surface and groundwaters within the Central Coast Region include municipal and domestic supply; agricultural supply; industrial process and service supply; recreation; warm and cold freshwater habitat; wildlife habitat; migration; spawning; areas of special biological significance (now called State Water Quality Protection Areas or SWQPAs); rare, threatened or endangered species; freshwater replenishment; and groundwater recharge. Beneficial uses that apply to all waterbodies, unless otherwise identified in the Basin Plan, include municipal and domestic supply, recreation, and aquatic life (either warm or cold freshwater habitat, as applicable).

44. California Environmental Quality Act – For purposes of adoption of this Waiver Order, the Regional Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21100 et. seq.). The action to adopt a conditional waiver is intended to protect and improve water quality. The waiver order sets forth conditions that will require Dischargers to implement management practices to protect water quality and to monitor to ensure that such practices are effective and are improving water quality. The Regional Board

has not regulated the discharges subject to this waiver Order to this extent in the past. Such regulation will result in protection, maintenance and improvement of water quality. The Regional Board adopted a Negative Declaration in Resolution R3-2004-0118.

45. Anti-Degradation – This Order is consistent with the Provisions of State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Regional boards, in regulating the discharge of waste, must maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in a regional board's policies. This conditional waiver Order will result in improved water quality throughout the region. 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. The conditions of this waiver will protect high quality waters and restore waters that have already experienced some degradation.

46. 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.

47. Interested parties were notified of the intent to adopt a conditional waiver of waste discharge requirements for discharges from irrigated lands, including irrigation wastewater and/or stormwater, to surface waters and groundwater as described in this Waiver Order and were provided an opportunity for a public hearing and an opportunity to submit written comments.

48. In a public hearing, all comments pertaining to this Waiver Order were heard and considered.

IT IS HEREBY ORDERED that, pursuant to California Water Code sections 13263, 13267 and 13269, Dischargers of irrigation wastewater and/or stormwater from irrigated lands to waters of the state, who file for coverage under this Waiver Order in order to meet the provisions contained in California Water Code Division 7 and regulations and plans and policies adopted thereunder, and who request waiver of waste discharge requirements, shall comply with the following terms and conditions:

PART I. WAIVER

1. The discharge of any wastes not specifically regulated by the waiver described herein is prohibited unless the Discharger complies with CWC Section 13260(a) and the Regional Board either issues waste discharge requirements pursuant to CWC Section 13263 or an individual waiver pursuant to CWC Section 13269 or the time frames specified in CWC Section 13264(a) have elapsed.

2. The Regional Board waives the submittal of a ROWD and WDRs for discharges from irrigated land if the Discharger complies with the conditional waiver described in this Order and Monitoring and Reporting Program R3-2004-0117.

3. 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.

4. This waiver shall not create a vested right and all such discharges shall be considered a privilege, as provided for in CWC Section 13263.

5. Pursuant to CWC Section 13269, this action waiving the issuance of waste discharge requirements for certain specific types of discharges: (a) is conditional, (b) may be terminated at any time, (c) does not permit an illegal activity, (d) does not preclude the need for permits which may be required by other local or governmental agencies, and (e) does not preclude the Regional Board from taking enforcement actions (including civil liability) pursuant to the CWC.

PART II. WAIVER PROGRAM

A. Definitions

1. Irrigated lands – lands where water is applied for the purpose of producing commercial crops. For the purpose of this Conditional Waiver, irrigated lands include, but are not limited to, land planted to row, vineyard, field and tree crops, commercial nurseries, nursery stock production, and greenhouse operations with soil floors.

2. Irrigation return flow – surface and subsurface water which leaves the field following application of irrigation water.

3. Tailwater – the runoff of irrigation water from the lower end of an irrigated field.

4. Stormwater runoff – the runoff of precipitation from the lower end of an irrigated field.

5. Subsurface drainage – water generated by installing drainage systems to lower the water table below irrigated lands. The drainage can be generated by subsurface drainage systems, deep open drainage ditches or drainage wells.

6. Discharge - a release of a waste to waters of the State, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include earthen materials (soil, silt, sand, clay, rock), inorganic materials (metals, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.), and organic materials such as pesticides.

7. Discharger - the owner and/or operator of irrigated cropland on or from which there are discharges of waste that could affect the quality of any surface water or groundwater.

8. Requirement of applicable water quality control plans- a water quality objective, prohibition, Total Maximum Daily Load (TMDL) implementation plan, or other requirement contained in water quality control plans adopted by the Regional Board and approved according to applicable law.

9. Monitoring - refers to all types of monitoring undertaken in connection with determining water quality conditions and factors that may affect water quality conditions, including but not limited to, in-stream water quality monitoring undertaken in connection with agricultural

activities, monitoring to identify short and long-term trends in water quality, inspections of operations, management practice implementation and effectiveness monitoring, maintenance of on-site records and management practice reporting.

10. 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 and on-line at http://anrcatalogue.ucdavis.edu/merchant.ihtml?pid=5604&step=4.

11. All other terms shall have the same definitions as prescribed by California Water Code Division 7, unless specified otherwise.

B. Enrollment Process

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

C. Waiver Tiers

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

D. General 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 NO_3) 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.

PART III. RECOMMENDATIONS

1. Controlling pollutants at the source should be the primary approach to water quality protection.

2. Irrigation efficiency improvement should be used to minimize wastewater generation.

3. Crop nutrient requirements should be evaluated to minimize fertilizer applications.

4. Irrigation water nitrate and soil nitrate content should be incorporated in fertilization decisions.

5. Erosion control should be considered as part of storm water management and irrigation water management.

6. Integrated pest management techniques, such as pest population monitoring, should be incorporated into pest control decision-making to minimize use of pesticides.

PART IV. PROVISIONS

1. The Discharger shall comply with an individual or cooperative Monitoring and Reporting Program approved by the Regional Board Executive Officer.

2. A copy of the Conditional Waiver and farm water quality plan shall be kept at the operation for reference by operating personnel. Key operating and site management personnel shall be familiar with its contents.

3. In the event of any change in control or ownership of an operation presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this conditional waiver order by letter, a copy of which shall be immediately forwarded to the Regional Board Executive Officer. The new Discharger shall submit a NOI within 30 days.

4. The Discharger shall take all reasonable steps to prevent any discharge in violation of this conditional waiver.

5. The Discharger shall furnish the Regional Board, within a reasonable time, any information that the Board may request to determine compliance with this conditional waiver Order.

6. The Discharger shall allow Regional Board staff reasonable access onto the subject property (the source of runoff and percolating water) whenever requested by Regional Board staff for the purpose of performing inspections and conducting monitoring, including sample collection, measuring, and photographing to determine compliance with conditions of the waiver.

7. Pursuant to CWC section 13267, the following information/reports shall be submitted to the Regional Board according to the following time schedule to ensure compliance with the terms and conditions of this Conditional Waiver, unless the Regional Board has granted a time extension[1]:

[1] The Regional Board recognizes that the cooperative monitoring entity is not a discharger subject to regulation under the Porter-Cologne Water Quality Control Act. However, the cooperative monitoring entity must satisfy the milestones applicable to it before any individual discharger may rely on cooperative monitoring to satisfy the discharger's monitoring requirements.

Reporting Tasks/Milestones	Responsible Party	Due Date
Notice of Intent	All Dischargers	January 1, 2005
Annual Report	Tier 2 Dischargers	January 1, 2006 and annually thereafter
Management Practice Checklist Update	Tier 1 Dischargers	January 1, 2007

Monitoring Tasks/Milestones	Responsible Party	Due Date
Establish an Agricultural Committee*	Cooperative Monitoring Program	September 1, 2004
Establish a Cost Allocation Subcommittee*	Cooperative Monitoring Program	November 1, 2004
Establish a Agricultural Monitoring Subcommittee* (not required)	Cooperative Monitoring Program	As early as possible
Establish a Cooperative Monitoring Entity*	Cooperative Monitoring Program	January 1, 2005
Approved Quality Assurance Project Plan and Sampling Plan	Cooperative Monitoring Program/Individual Dischargers	January 1, 2005
Start Date Salinas and Santa Maria Area Monitoring	Cooperative Monitoring Program	January 1, 2005
Start Date for Individual Monitoring	Individual Dischargers	October 1, 2005
Submit List of Participants in Cooperative Monitoring Program	Cooperative Monitoring Program	January 1, 2006
Submit Cost Allocation Formula	Cooperative Monitoring Program	January 1, 2006
Start Date for Regionwide Cooperative Monitoring	Cooperative Monitoring Program	January 1, 2006
Electronic Monitoring Data Submittal	Cooperative Monitoring Program/Individual Dischargers	Three months after start of monitoring and quarterly thereafter
Hard Copy Monitoring Report Submittal	Cooperative Monitoring Program/Individual Dischargers	January, 2007 and annually thereafter

* The Agricultural Committee will have the sole authority to determine the membership of the Agricultural Monitoring Committee and Cost Allocation Committee. The Agricultural Committee is not required to open committee membership to the general public

8. All reports, NOI, or other documents required by this conditional waiver Order, and other information requested by the Regional Board shall be signed by the owner and/or operator of an irrigated operation.

9. Any person signing a NOI, monitoring report, or technical report makes the following certification, whether written or implied:

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

10. Violations of this conditional waiver may result in enforcement actions as authorized under the CWC.

11. Conditional waivers may be issued for five years and may only be reissued after a public hearing. The conditional waiver will be reviewed at a public hearing on or before May 13, 2009. At that time, additional conditions may be imposed.

12. A waiver of WDRs for a type of discharge may be superseded by the adoption by the State Board or Regional Board of specific waste discharge requirements or general waste discharge requirements for specific discharges.

13. The Regional Board may review this Order and Conditional Waiver at any time and may modify or terminate the waiver in its entirety or for individual Dischargers as appropriate.

14. The Regional Board directs the Executive Officer to provide regular updates to the Regional Board regarding the effectiveness of the conditional waiver to regulate these types of discharges. These updates may include: Executive Officer Reports, memoranda, staff reports, workshops, and agenda items.

15. This Order and Conditional Waiver shall become effective **July 9, 2004** and expire **July 9, 2009** unless rescinded, renewed or extended by the Regional Board.

I, Roger W. Briggs, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Coast Region, on July 9, 2004.

Bradley E. Hagman
FOR Roger W. Briggs
Executive Officer

EXHIBIT D

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR JULY 8, 2004

Prepared June 18, 2004

ITEM: 3

SUBJECT: **Proposed Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands in the Central Coast Region (Region 3)**

SUMMARY

In 1999 California Water Code section 13269 was amended, causing all waivers of waste discharge requirements (WDRs) that existed on January 1, 2000, to expire on January 1, 2003. Two Region 3 waivers applicable to irrigated agriculture, one for irrigation return water and the other for non-NPDES stormwater discharges, have now expired and must be replaced. In the years since the adoption of the original waivers in 1983, water quality in Region 3's agricultural areas has been shown to be impaired by such constituents as pesticides and nutrients, lending further urgency to the need to adopt additional requirements for irrigated operations.

The goal of the conditional waiver program is to ensure that all farm operations are actively protecting water quality, that water quality objectives are being met, and that beneficial uses of water are protected or restored.

The proposed waiver has the following conditions:

- Completion of 15 hours of farm water quality training
- Development of a farm water quality management plan that addresses, at a minimum, irrigation management, nutrient management, pesticide management and erosion control
- Implementation of management practices identified in the plan
- Submittal of a Notice of Intent and periodic progress reports
- Performance of water quality monitoring
- Compliance with Basin Plan requirements and water quality standards

The Regional Board held three workshops to receive public input on the proposed conditional waiver. Workshops were held in Santa Barbara (October 23, 2003), Salinas (January 9, 2004), and San Luis Obispo (February 5, 2004). Comments received for the February workshop are included in Attachment 6 along with staff responses.

Regional Board staff completed a draft Negative Declaration for the proposed project under the California Environmental Quality Act (CEQA) which was released for public comment on March 22, 2004. A copy of the Initial Study and Negative Declaration is included as Attachment 1. A Resolution adopting the Negative Study is included as Attachment 2. The proposed Conditional Waiver and proposed Monitoring and Reporting Program are included as Attachments 3 and 4. Monitoring scenarios and estimated costs are included in Attachment 5. Comments received on the Initial Study and Negative Declaration, the proposed Conditional Waiver and proposed Monitoring and Reporting Program are included in Attachment 6, along with staff's responses. Comment letters received are included in Attachment 7. **All attachments will be posted on the Regional Board's website (www.swrcb.ca.gov/rwqcb3/AGWaivers/ Index.htm) and available in hard copy by contacting Alison Jones at (805) 542-4646.**

BACKGROUND

Agriculture in the Central Coast Region

Irrigated agriculture is a major land use in the Central Coast Region, encompassing approximately 600,000 acres. More than 100 different crops are grown and agricultural activities take place year round. Major crops include vegetable crops (such as lettuce, broccoli, cauliflower, celery, cabbage and spinach), fruits (such as strawberries and wine grapes), cut flowers, and potted plants. Other crops include artichokes, raspberries, asparagus, carrots, onions, snap peas, and many more.

There are about 2500 agricultural operations in the region that could be enrolled under this program, and they range in size from less than ten acres to more than 2000; however, approximately two-thirds of all operations are less than fifty acres. About one-third are less than ten acres. Fewer than 200 operations (less than 8%) exceed 2000 acres.

Irrigated agriculture is concentrated in several major drainages, including the Salinas Valley and upper Salinas watershed, the Pajaro Valley, the lower Santa Maria River, the Santa Ynez watershed and the Santa Barbara coastal area. Irrigated farmland is found in numerous small drainages throughout the region, as well.

A number of factors combine to make agriculture in this region unique. In general, farming is on a smaller scale than in the Central or Imperial Valleys. The Central Coast climate is unique in California and comprises a "niche" in the agricultural industry that distinguishes Central Coast farm products from other areas. As mentioned above, the majority of operations are less than 50 acres. There are no large irrigation districts since most operations use groundwater as their water source. Many properties have been held in families for generations and are leased out rather than farmed by the owner. The area is considered highly desirable, and growth pressures drive up the price of agricultural rents. There is a mixture of owned and leased lands and many operators own some farms and lease others. Leases can be either short or long term (one year or more than five years), resulting in varying incentive by lease-holders to implement water quality protection.

Crop prices are primarily controlled by the existing market structure. Consolidation in the food industry has resulted in a smaller group of buyers, giving corporate retailers more bargaining power. In addition, local farmers often compete with products from other countries, where the costs of production may be substantially less. The result is that growers often have little control over the price they are paid even though the costs of producing and delivering products continues to rise. Additionally, issues of food safety are increasingly dictating practices growers must use in order to sell crops, and some recommended food safety practices may run counter to water quality protection practices. Because of these and other factors, the agricultural industry is extremely sensitive to cost increases and management practice requirements.

Water Quality in Agricultural Areas

Over the past five years, the Regional Board's Central Coast Ambient Monitoring Program (CCAMP) has provided information to characterize water quality, support waterbody beneficial use determinations, support waterbody listings for impairment, and to evaluate regional priorities.

CCAMP data, as well as other data sources, have shown that waterbodies in areas of intensive agriculture often have high levels of nutrients. For example, nitrate in some surface waters is present at levels far in excess of the drinking water standard of 10 mg/L as N (nitrogen). Persistent toxicity has also been documented in some areas of intensive agricultural operations, with its cause being traced to currently applied pesticides. Of approximately 175 surface waterbodies that are on the Central Coast Region's 2002 Clean Water Act Section 303(d) list of impaired waters, about 75 identify agriculture as a potential source. In addition, many groundwater basins underlying agricultural areas in the Central Coast Region show elevated nitrate concentrations, in many cases well over the drinking water standard.

Existing Efforts by the Agricultural Industry to Address Water Quality Issues

The Central Coast Region has benefited from the proactive approach taken by several segments of the agricultural industry. Notable examples include the Agricultural Water Quality Program of the Coalition of Central Coast County Farm Bureaus (Farm Bureau Coalition) and efforts to promote sustainable wine growing practices by the Central Coast Vineyard Team and the Central Coast Winegrowers Association. Efforts are also underway to promote sustainable practices by Spanish-speaking farmers through the Rural Development Center and the Agricultural Land-

Based Training Association (ALBA) in Monterey County.

The Farm Bureau Coalition has been working to address agricultural water quality impacts in areas that drain to the Monterey Bay National Marine Sanctuary, which represents approximately two-thirds of the region. This is a broadly supported cooperative effort that is implementing the Sanctuary's Plan for Agriculture and Rural Lands. The Sanctuary Plan was developed in cooperation with the California State Farm Bureau Federation and the Coalition of Central Coast County Farm Bureaus, the Regional Board and numerous other partners, including University of California Cooperative Extension, the Natural Resource Conservation Service and local Resource Conservation Districts.

Key components of the Sanctuary Plan implementation strategy include formation of grower working groups, and development and implementation of farm water quality management plans. Technical assistance is provided by Farm Bureau watershed coordinators active in each county, as well as all of the other partners listed above. Farm Bureau watershed coordinators provide the Regional Board with annual reports summarizing practice implementation and self-monitoring results by grower watershed working groups.

A small but significant (and increasing) percentage of growers on the Central Coast are participating in this program. As of March 2004, there were 17 active grower working groups and another 17 in the process of organizing. Staff estimates that active participants represent approximately 10-15% of operations in the region. Participants are often industry leaders who have chosen to be proactive in addressing water quality concerns.

Another industry-led effort has been underway for several years to promote sustainable practices by wine grape growers. There are approximately 100,000 acres of grapes in the Central Coast. Most vineyards are irrigated, so grapes are grown on about 16% of the irrigated croplands in the region. Many of the growers have undertaken an evaluation process to assess irrigation, nutrient management, pest management, and erosion control practices through the Positive Point System developed by the Central Coast Vineyard Team (CCVT). CCVT estimates that approximately 75-100 operations have completed evaluations and are using them to evaluate management practices and identify opportunities for improvement It is still too early to determine if these efforts are having a positive impact on water quality, but the waiver monitoring program should help determine whether such efforts, done on a large scale, can improve water quality over time.

Regulatory Requirements

Although discharges from irrigated agriculture are exempt from regulation through the National Pollutant Discharge Elimination System (NPDES) permit program of the federal Clean Water Act, they are not exempt from state law. Any discharge from irrigated agricultural activities to surface water or to land, that impacts or could impact water quality, is subject to regulation under the California Water Code (CWC).

CWC Section 13260 requires persons who are discharging or who propose to discharge waste where it could impact the quality of waters of the State to submit a Report of Waste Discharge. The Regional Board uses the Report of Waste Discharge in preparing Waste Discharge Requirements that regulate the discharges of waste in compliance with the CWC and other applicable laws and regulations. The purpose of this regulatory program is to protect the beneficial uses of the waters of the State.

CWC Section 13269 authorizes the Regional Board to waive Waste Discharge Requirements for a specific discharge or specific type of discharge if the waiver is in the public interest. The waiver must be conditional and may be terminated at any time. The Regional Board may also waive the requirement to submit a Report of Waste Discharge. In 1999, Senate Bill 390 amended CWC Section 13269. CWC Section 13269 now specifies that all waivers in effect on January 1, 2000, were terminated on January 1, 2003, unless renewed following a hearing. Waivers expire after five years unless renewed by the Board after appropriate review.

In 1983, the Regional Board approved a list of categories of discharge for which waste discharge requirements could be waived, including discharge of irrigation return flows (tailwater)

and non-NPDES stormwater runoff. When waivers for discharges from irrigated agriculture were adopted in 1983, little was known about the potential impacts of irrigation tail water and other runoff or the magnitude of groundwater impacts from the use of inorganic fertilizers. Regional Board regulatory effort at that time was largely focused on addressing point source discharges such as wastewater treatment plants and industrial dischargers, and cleanups from spills and leaks. The 1983 waivers pertaining to irrigated agriculture were not renewed before January 1, 2003, and have now terminated.

In 1987, Section 319 was added to the Clean Water Act to address nonpoint source pollution, and subsequently the State of California adopted its Nonpoint Source Program in 1988. Although staff resources to implement the program were extremely limited, the Regional Board began to work with agriculture through the Nonpoint Source (NPS) Program and later the State's Watershed Management Initiative. Since the inception of the NPS program, the Regional Board's emphasis in working with agriculture has been on encouraging proactive efforts to address water quality concerns, and supporting such cooperative partnerships as Monterey Bay National Marine Sanctuary's Plan for Agriculture. The Regional Board has directed grant funding toward increasing educational outreach, and has encouraged efforts toward self-determined compliance with water quality regulations through promotion of ranch and farm water quality management planning short courses throughout the region.

The State's NPS Plan identifies waivers as an appropriate regulatory tool available to protect water quality from NPS pollution, recognizing the challenges involved in regulating a large number of individual dischargers.

The State recently adopted an updated policy for implementing the NPS Plan, which identifies five key elements that must be included in NPS management plans. Those elements are:

Element 1: Goal and purpose
Element 2: Description of practices to be implemented and process used to select, verify and ensure practice implementation
Element 3: Time schedule and milestones
Element 4: Feedback mechanisms
Element 5: Consequences of failure

Although the revised policy will not become effective until approved by the Office of Administrative Law, the proposed conditional waiver program will incorporate the key elements into program implementation as described below.

DEVELOPING A NEW REGULATORY PROGRAM

Staff followed an evolving process in developing the proposed conditional waiver. In the fall of 2002, lead staff met with other Regional Board staff from both regulatory and nonregulatory programs to gather input and discuss the most appropriate approach for replacing expired agricultural discharge waivers. Staff discussed three options:

1) allowing the waivers to expire and continuing to work with agriculture through existing voluntary efforts such as the Sanctuary program, the Central Coast Vineyard Team and other proactive efforts;
2) developing a new conditional waiver that was designed to build on the existing efforts; or
3) developing general or individual Waste Discharge Requirements.

After considerable discussion, lead staff and management came to agreement on moving forward with a new conditional waiver, modeled in part on existing voluntary programs, with group enrollment and reporting. The conditional waiver would offer increased regulatory oversight, but would have the flexibility to build on existing proactive efforts. Staff then met informally with several agricultural and environmental groups around the region to explain what was being proposed and obtain their input. During the course of several meetings, it became apparent that both the agricultural and environmental interests had legitimate concerns that were not likely to be addressed through the Regional Board's usual regulatory process. Staff

then proposed to several groups that it might be worthwhile to have the parties work together. There was considerable support for the idea.

Agricultural Advisory Panel

In February 2003, staff convened an advisory group of agricultural and environmental representatives from across the Region. Staff's intent was to have a panel that represented most of the major agricultural interests as well as key environmental organizations. Originally, the size was to be 8 to 10, but it soon became apparent that more agricultural representatives were needed to accommodate several counties and many organizations. Although some panel members changed through the course of the year, all original organizations continued to be represented. Participant numbers were usually about 20. Participating organizations included the Ocean Conservancy, the Central Coast Coalition of County Farm Bureaus, Monterey County Farm Bureau, Jefferson Farms, Santa Cruz County Farm Bureau, San Benito County Farm Bureau, the Environmental Center of San Luis Obispo (ECOSLO), the Environmental Defense Center, Monterey Bay National Marine Sanctuary, the Agricultural Land-Based Training Association (ALBA), the Central Coast Winegrowers Association, San Luis Obispo County Farm Bureau and Cattlemen's Association, Santa Barbara County Farm Bureau, Grower Shipper Vegetable Association of Santa Barbara, and Santa Barbara Channel Keeper. Several other organizations that were contacted felt that their interests were adequately represented but expressed a desire to be kept informed.

Panel meetings were conducted as facilitated discussion sessions. The group adopted ground rules and spent time hearing about the interests and concerns of each of the participants. The panel heard concerns about fertilizers and pesticides getting into streams and concerns about the costs of a program and agriculture's inability to pass costs along to consumers. In this way, a foundation of understanding was built that allowed the participants to discuss ideas and propose solutions in a respectful environment. At the second meeting, the panel agreed on a mission statement, which reads, "The goal of the panel is to assist staff in developing recommendations to the Regional Board for a replacement to the expired waivers that will be protective of water quality, the viability of Central Coast agriculture, and comply with state law."

Panel Recommendations

All panel recommendations were developed by consensus. Where the panel did not have consensus, the proposed recommendation was not included in the panel's final recommendations to staff. The panel considered the requirements of the law, each party's interests and existing agricultural efforts to protect water quality. The panel discussed what was being done by agriculture to implement the Sanctuary Plan for Agriculture, such as hiring Farm Bureau coordinators who were helping to organize groups of growers in watersheds, arranging for UCCE Farm Water Quality short courses and compiling reports on working group activities.

The panel reached agreement on the education and farm water quality plan development requirements, management practice implementation and reporting through a checklist format, and the tiered structure of the waivers, which offer reduced reporting for those meeting all requirements by the enrollment deadline. The panel also recommended that monitoring focus on currently applied agricultural constituents, make use of existing monitoring resources wherever possible, and be structured on a cooperative basis rather than on individual discharge monitoring.

There were a number of issues where the panel did not develop a consensus on recommendations, including how to address groundwater and stormwater issues, and the details of a cooperative monitoring program. In many ways, these are the most difficult issues the panel faced, and several meetings were devoted to exploring them.

Discharges to groundwater are included in the waiver because of Region 3 Basin Plan requirements and because of widespread and well-documented nitrate contamination in groundwater basins underlying agricultural areas

throughout the region. Staff is not proposing to require groundwater monitoring, but the waiver requires dischargers to identify practices that will protect groundwater as well as surface water.

Stormwater discharges were covered under the original 1983 waivers. New requirements were developed by staff with input from technical service providers. Several comment letters expressed concern with the language about stormwater discharges. The waiver does not mandate containment of stormwater and the language in the order has been revised to clarify that point.

Staff proposed a cooperative monitoring approach as a way to meet regulatory requirements without the overwhelming financial burden of individual monitoring. Staff developed the program based on the experience of managing the CCAMP program, input from academic researchers, and review of other monitoring programs. Considerable discussion revolved around the need for expensive toxicity testing and the frequency of monthly conventional sampling. The program was designed to assess both water quality and beneficial use support, which staff believes is necessary in order to determine effectiveness of the waiver. Staff examined variability of various key parameters in the CCAMP database to evaluate needed sampling frequency; monthly sampling requirements for conventional water quality were based on the need to document improvement within the five to ten years staff anticipates will be needed to substantially improve water quality.

PROPOSED WAIVER

The Regional Board proposes to adopt a conditional waiver of waste discharge requirements and a waiver of the requirement to submit a report of waste discharge for discharges of waste from irrigated lands. Irrigated lands are lands where water is applied for producing commercial crops and, for the purpose of this program, include, but are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors that are not currently operating under Waste Discharge Requirements (WDRs). Fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors) are not covered under this Conditional Waiver and must either eliminate all surface water discharges or apply for Waste Discharge Requirements. Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Conditional Waiver.

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, and storm water runoff flowing from irrigated lands. These discharges can contain wastes that could affect the quality of waters of the state.

Discharger means the owner and/or operator of irrigated cropland on or from which waste is discharged that affects or could affect the quality of waters of the state.

Tiered Waiver Structure

Two categories of conditional waivers are proposed, in acknowledgement that a significant number of farmers in the Central Coast Region have already begun to actively address water quality protection by obtaining water quality education, developing farm plans or completing practice assessment tools, and changing their practices to protect and improve water quality.

Tier 1 (five-year) waivers are intended for those dischargers that have already completed a minimum of fifteen hours of farm water quality training, have completed farm water quality plans, and have begun the process of implementing management practices to protect water quality. Tier 1 waivers are valid for five years or the length of time remaining in the five-year waiver cycle.

Tier 2 (one-year) waivers are intended for those dischargers that cannot meet all requirements of Tier 1 by the enrollment deadline of December 1, 2004. Tier 2 waivers are renewable annually for a maximum of three years. A discharger may move from Tier 2 to Tier 1 at any time during the three year period. Tier 2 dischargers that have not met all requirements for a Tier 1 waiver by the end of three years may be

required to apply for waste discharge requirements unless they can demonstrate progress toward meeting Tier 1 requirements as well as extenuating circumstances, such as lack of available training classes, that prevented them from meeting all requirements within the allotted time period.

Tiered conditional waivers will provide increased regulatory oversight and focus attention on those dischargers that have not begun to address water quality issues, while allowing those dischargers that are already working toward full compliance with water quality objectives to devote their time and resources to implementing management practices. The time schedule will allow a limited amount of time to meet requirements for education and planning, and allow time for implementation and adjustment of management practices. Dischargers will report current and planned management practice implementation upon enrollment and during the five-year waiver cycle through annual or biennial reports. Waste discharge requirements and enforcement will be reserved for non-compliant dischargers, or if water quality does not improve. Draft Order R3-2004-0XYZ, Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands is included as Attachment 3.

PROGRAM IMPLEMENTATION AND ENFORCEMENT

Compliance with the State's *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program*

The new *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Policy) will require any program adopted to address NPS pollution to contain five key elements, as described below. Although the NPS Policy will not take effect until the Office of Administrative Law approves it, Regional Board staff provides the following information in an effort to meet the informational policies of the NPS Policy.

Element 1: The goal and purpose of the conditional waiver program is to achieve and maintain water quality objectives and beneficial uses of the state's waters, including antidegradation where applicable. Staff recognizes that meeting this goal is a long-term effort, and cannot be achieved during the five-year waiver cycle. Goals of the conditional waiver program during the next five years are to ensure that all farm operations are actively protecting water quality, that progress toward achieving water quality objectives is made, and that beneficial uses of water are protected or restored in compliance with the policies of the Porter-Cologne Water Quality Control Act.

Element 2: Management practices to be implemented by irrigated agricultural operations include practices aimed at improving irrigation efficiency, managing nutrients and pesticides effectively, and improving erosion control. Within each of these categories, growers may choose from a substantial number of management practices. Typical management practices include cover crops, buffer strips, filter strips, grassed roadways and ditches, sediment detention basins, water and soil nitrate testing, fertilizer placement and timing, irrigation method and efficiency, irrigation timing based on crop needs, recycling of irrigation water, pest population monitoring and use of thresholds, and many others. Farm plans will identify currently implemented practices and what is being planned.

The water quality education requirement ensures that growers will have up-to-date information on the most effective practices and will be able to choose the best combination of practices for their particular operation.

Element 3: Time schedule and milestones are an essential part of the program. Although the Regional Board's goal is 100% compliance with the conditions of the program, staff recognizes that this is unlikely to occur immediately for a variety of reasons. Staff will focus considerable effort on outreach during the first six months after the waiver's adoption, to ensure that both landowners and operators are aware of new requirements. A database is being compiled which includes both pesticide use reporting information and county assessors' information, to ensure that landowners and operators are being contacted. Staff intends to use the following schedule of timelines and milestones to implement the program:

January 1, 2005 – A minimum of 50% of dischargers are enrolled
July 1, 2005 – A minimum of 80% of dischargers are enrolled, and 50% are enrolled in the cooperative monitoring program
January-March 2005 – phone calls, Notice of Violation letters sent out to dischargers who have not enrolled in the program or submitted reports of waste discharge
March-July 2005 – Enforcement actions initiated against dischargers who have not enrolled in the program or submitted reports of waste discharge
July 2005 and annually thereafter – Program review before the Board
July 2006 – Management practices will be implemented on a minimum of 50% of irrigated farmlands in the region and identified through a Notice of Intent and practice checklists
July 2007 – Monitoring Program review before the Board
July 2009 – Management practices will be implemented on a minimum of 80% of irrigated farmlands within the region.

Water Quality Monitoring program data will be reviewed monthly, and a water quality report will be produced for each annual program review. In watersheds with significant impairments and developed or implemented TMDLs, staff will coordinate with TMDL schedules to set goals for attainment of water quality objectives. The program's overall goal will be to show improvements in water quality in irrigated lands through the monitoring program within five to ten years of program implementation, and to achieve and maintain water quality objectives within TMDL schedules or within ten years of waiver program implementation.

Element 4: Feedback mechanisms are incorporated into the reporting requirements, which require submittal of management practice checklists and annual reports and water quality monitoring requirements. Oversight by the Regional Board will include review of reports and field verification and will be summarized as part of the annual program review. Dischargers will submit a Notice of Intent to obtain coverage under the waiver, along with a farm map, certificates of education and a checklist of practices. This checklist will contain a subset of potential practices available for each management measure, to allow Regional Board to assess overall implementation of practices in an area. The intent is not to maintain an exhaustive inventory of all practices, or to require ever-increasing management practices for each farm, but rather to obtain an overall picture of what practices are being implemented to address each of the management measures. Dischargers will keep more extensive records on-site as part of their farm plans, which will be available for staff to review during a site visit if requested.

Dischargers will enroll in one of two tiers depending on whether they have completed education and plan development requirements prior to enrollment. Those that have will be in Tier 1 and will only have to submit one additional checklist during the 5-year waiver cycle. Other dischargers who are still working to complete education and plan development requirements will have to report progress as well as submit a practice checklist annually.

Information in the enrollment and subsequent submittals will be used to assess management practice implementation, with the understanding that choosing an effective combination of management practices is a dynamic process.

Element 5: Consequences of failure to achieve program milestones will be reconsideration of the program structure and conditions, consideration of issuance of individual or general waste discharge

requirements and increased focus on enforcement. Annual program review will allow for adjustment of staff effort, reallocation of staff resources and public input; the five year review at the end of the first waiver cycle will allow for revision of conditions as needed, consideration of monitoring program effectiveness, and extensive public review of the entire program. If necessary, the waiver can also be revised or terminated within the next five years.

ENFORCEMENT

Role of Enforcement

Enforcement is only one tool in water quality protection[1], and will be used to ensure that dischargers are meeting performance requirements, that is, enrolling, developing plans, implementing management practices and meeting monitoring and reporting requirements. Staff intend to initiate few if any enforcement actions based solely on water quality data during the first waiver cycle, unless there is clear evidence of flagrant or deliberate impacts to water quality. The focus of enforcement effort will be on those who, after being informed of requirements, fail to enroll and/or fail to make an adequate attempt to meet their education, plan development or monitoring and reporting responsibilities; however, other enforcement actions may be taken as appropriate for specific operations. The Regional Board will utilize progressive enforcement techniques to obtain compliance using the lowest level of enforcement tool (e.g., phone call, Notice of Violation letter) that effectively achieves the program's goals. (See, State Water Resources Control Board's *Water Quality Enforcement Policy*, Section I.D.)

[1] Other tools include education, outreach and funding. In order to develop a successful agricultural program, Regional Board staff intends to focus their efforts on education and outreach so that widespread enforcement actions will become unnecessary. These educational efforts will include providing assistance to entities eligible to apply for grants to fund monitoring or management practice development. Some grants will be available from Regional Board SEP or settlement funds, as well as the State Water Resources Control Board's Agricultural Water Quality Grants Program.

Enforcement Tools and Staffing Resources

Concern and/or skepticism has been expressed about the ability of the Regional Board to implement this conditional waiver program. While it is true that staff resources are limited, sufficient resources will be available for fiscal year 04/05 to devote three to four staff exclusively to performing waiver tasks, including outreach, oversight, data management and enforcement. Staff recognizes that although many in the agricultural community have been and will continue to make a good faith effort to protect water quality, and will do their best to comply with conditions, there are others who believe they will not have to participate. Staff will use all the enforcement options available to ensure that such dischargers are not allowed to violate the law. Tools will include Notices of Violation, which allow dischargers to enroll within a specified time period, Administrative Civil Liability (fines), and Cease and Desist Orders or Time Schedule Orders. In the most egregious cases, the Regional Board can consider seeking judicial enforcement. Where the waiver is not an appropriate regulatory tool for a particular facility, the Regional Board will require a report of waste discharge and issue waste discharge requirements. Cleanup and Abatement Orders may be appropriate where past discharges are susceptible to cleanup. Obviously, four staff cannot develop enforcement actions against hundreds of dischargers immediately if large numbers refuse to comply, but in appropriate cases the Regional Board can assess civil liability retroactively for every day a discharger is out of compliance with the law. If enforcement actions prove necessary, staff can maximize resources by targeting enforcement efforts where they will have the greatest deterrent effect on similar violators.

When the Regional Board does undertake enforcement actions, its discretion in setting the liability amount is limited by statutory factors. The Regional Board must balance these factors: the nature, circumstance, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the discharger, the ability to pay, the effect on

ability to continue in business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters as justice may require. Any discharger subject to an administrative liability action has the right to a public hearing, and may petition the Regional Board's order to the State Board.

Regional Board staff intends to use education and outreach before bringing an enforcement action where a discharger demonstrates that a failure to enroll resulted from lack of information or language barriers. However, every person is presumed to know the law, so it will be imperative that the agricultural community, including Farm Bureaus, watershed coordinators, technical assistance agencies and other entities assist with educational efforts.

Use of Monitoring Data

The intent of the Monitoring and Reporting Program is to provide a tool that the Regional Board and agricultural operations can use to develop the most effective suite of management practices, assess the effectiveness of those practices, track improvements in existing water quality and target areas where more work is needed. Water Code section 13269 requires the monitoring program to demonstrate the effectiveness of waiver conditions. The ultimate goal of the conditional waiver program is to ensure that water quality standards are being met and that irrigated agriculture is not contributing to water quality impairment. The monitoring program is designed to assess this at a reasonable cost and over a relatively long period of time. The program is designed to look for improvement in water quality in waters that have been identified as impacted by agriculture, as well as ensure that existing good water quality in other areas is not degraded by irrigated agriculture. In some watersheds water quality standards will only be achievable when other discharges are also addressed; in others, addressing agricultural impacts will result in attainment of water quality standards. However, this will not happen overnight. Therefore, monitoring data must be used in conjunction with information about compliance with performance standards in an attempt to fully understand and address the causes of water quality impairment.

Enforcement in Areas Where Groundwater is Already Degraded

As noted above, the agricultural program is intended to address water quality problems over a period of time. Degradation of certain surface and ground waters did not occur overnight, and addressing those problems will not occur overnight, either. In adopting the May 2004 NPS Policy, the State Board recognized that it may take time to achieve water quality requirements. (NPS Policy, p. 14.) This is such a case. An area of particular concern to farm operators is potential liability for existing high nitrate levels in groundwater. The intent of the program during the first five-year cycle is for operators to develop management practices that prevent additional degradation of groundwater and result in gradual improvements. Appropriate practices may include applying less fertilizer where irrigation water is already high in nitrates and other application efficiency measures.

The draft Monitoring and Reporting Program does not require groundwater testing yet. From a practical standpoint, this means that limited information would be available on which the Regional Board could base an enforcement action for groundwater discharges. Where groundwater data is available, Regional Board staff intends to use the information to assess and develop management practices and inform area growers, rather than for enforcement actions. Some isolated cases may warrant a different approach, but those cases would be likely to involve operations that fail to implement management practices. During the first five-year cycle, the focus will be on development of management practices that protect groundwater, rather than on enforcement actions. Where the Regional Board does undertake enforcement actions, it must consider the factors described above in setting the amount of liability.

PROPOSED MONITORING PROGRAM

Water Quality Monitoring

Water quality monitoring to determine the adequacy and effectiveness of the waiver conditions is required by CWC Section 13269. Dischargers will be required to elect a monitoring option during enrollment. They may choose individual monitoring or join a cooperative agricultural water quality monitoring program. The cooperative monitoring program will focus on currently applied agricultural constituents and is designed to provide information on in-stream water quality and to detect trends over time. The cooperative monitoring option is proposed as an efficient way to determine the effectiveness of the waiver program at a reasonable cost, as well as to manage large amounts of monitoring data and ensure data quality.

Cooperative monitoring represents a watershed-based approach to meeting monitoring requirements, but recognizes that most watersheds have mixed land uses and other discharges besides irrigated agriculture. For that reason, the focus of monitoring is on currently used agricultural constituents and toxicity, with provision for follow-up monitoring when problems are identified. Monitoring from on-going programs may be used to satisfy monitoring requirements and further delineate problems. Where necessary, the Regional Board will use its regulatory authority to require water quality information from other potential sources. Fifty sites will be selected throughout the agricultural areas of the region, on main stems of rivers and on tributaries entering the rivers. These sites will be monitored on a regular basis, to see whether implementation of management practices as the result of adoption of the waiver is improving water quality. Sites will be selected in areas where the Regional Board's Central Coast Ambient Monitoring Program and other data have identified water quality problems from nutrients and other constituents that are likely attributable to irrigated agriculture. The cooperative monitoring program allows dischargers to pool resources in order to accomplish required monitoring at a lower cost than individual monitoring.

Broad objectives of the cooperative monitoring program are to:

Short Term Objectives

- Assess status of water quality and associated beneficial uses in agricultural areas
- Identify problem areas associated with agricultural activities, where Basin Plan objectives are not met or where beneficial uses are impaired
- Conduct focused monitoring to further characterize problem areas and to better understand sources of impairment.
- Provide feedback to growers in problem areas; require additional monitoring and reporting as necessary to address problems

Long Term Objective

- Track changes in water quality and beneficial use support over time.
- Verify the adequacy and effectiveness of the waiver's conditions.

The proposed draft Monitoring and Reporting Program R3-2004-0117 is included as Attachment 4. Estimated costs under various monitoring scenarios are included in Attachment 5. Attachment 5 represents staff's estimates of what participation in a cooperative monitoring plan might cost; however, the actual costs for participating in a cooperative monitoring program are within the sole control of the participants. Grant funding can significantly reduce these costs, if the participants choose to apply for such grants. The Regional Board recognizes that this is a new, although not unprecedented, approach to satisfying the need for water quality information. In other parts of the state, dischargers have banded together and pooled resources to improve data quality, provide a broader perspective of water quality condition, and lower individual costs. Staff recommends that the program be set up by a nonprofit organization selected or formed by the agricultural community that has the ability to apply for newly available Agricultural Water Quality Grant Program funds. These funds allow nonprofit organizations and local public agencies to receive funds for monitoring and implementation of projects targeting irrigated agriculture and waiver compliance. These funds, along with other potential funding sources such as the PG&E and Guadalupe settlement funds, would greatly leverage growers' resources and allow establishment of the cooperative monitoring program for one or two years at a minimal cost to growers. This would allow additional time to formulate a cost allocation process and evaluate the cooperative monitoring program.

PROGRAM IMPLEMENTATION RESOURCES

Successfully implementing a program with 2500 potential enrollees will necessitate reordering priorities and redirecting staff effort from lower priority tasks. Some tasks that have been completed in the past will no longer be done, or will not be done to the same level as before. Staff estimates that four full time staff as well as student help and contract assistance for database development will be needed for fiscal year 04/05 in order to complete the following tasks:

Data Management
In order to ensure that all owners and operators of irrigated lands are aware of the new conditional waiver, a comprehensive mailing list will be created using both pesticide use reporting and county assessors' information. In addition, a database will be developed and linked to the Regional Board's website to enable on-line enrollment. The database will track submittals (Notice of Intent, management practice checklists, annual reports, monitoring data, etc.) Hardcopy data will also be entered into the database. Staff has developed a prototype of the database and is pursuing contract resources with State Board and USEPA. This effort may fit well with a statewide effort to track NPS Management Measures.

Outreach and Education
During the six months between adoption of the Conditional Waiver and the enrollment deadline, staff effort will be focused on ensuring that all potential enrollees are informed about upcoming requirements. Staff will distribute information through individual mailings, through the Regional Board's website, through coordination with Agricultural Commissioners, Resource Conservation Districts, University of California Cooperative Extension and other partners, and through presentations at industry meetings and short courses.

Oversight and Enforcement
Once enrollment has begun, staff effort will shift to enrollment review, ensuring compliance through reviewing submittals, notifications, site visits, and, where necessary, initiating enforcement activities. Although the primary intent of the program is to ensure implementation of water quality protection practices by agriculture, compliance with all conditions of the waiver are important and staff will work to ensure that all dischargers are enrolled, receiving education, developing farm plans and implementing practices.

In the short term, staffing resources will come from 1.2 PY (person-year) of existing NPS staff resources, 0.6 PY of Watershed Management Initiative (WMI) resources, 1.2 PY of BCP 81 resources and additional grant/contracting resources devoted exclusively to Agricultural Waiver implementation for fiscal year 04/05. NPS and WMI staff resources currently directed more generally to outreach and education and watershed management will be focused on waiver compliance activities. TMDL implementation activities funded by BCP 81 will focus on TMDLs that have agriculture as a primary source and staff will work to ensure compliance with waiver conditions. In addition, staff is proposing that a new position be added that will be devoted entirely to waiver program implementation.

In the longer term, additional resources may become available once a waiver fee schedule is adopted by the State Water Resources Control Board. Staff suggests that at least 5 of the 22 PYs being suggested for waiver implementation statewide be devoted to implementing Region 3's agricultural waiver program. Such additional resources will further ensure the long-term success of the waiver program.

REGIONAL BOARD SUPPORT FOR MANAGEMENT PRACTICE IMPLEMENTATION AND AGRICULTURAL MONITORING

Staff proposes several ways that the Regional Board can support agricultural compliance with the Conditional Waiver:

Grant Funds
At least 75% of all grant proposal recommendations for the next 3-5 fiscal years should be directly related to implementing management practices or monitoring activities required by the Conditional Waiver. Although all fund sources are not amenable to such an approach, the Regional Board should prioritize agricultural projects that are directly related to the Conditional Waiver over other types of projects, however desirable. Contract management requires staff time, which is very limited. Staff currently participates on the

Agricultural Grants Workgroup, which is developing guidelines and a Request for Proposals for agricultural projects funded by Proposition 40 and 50. Projects that assist farmers in meeting waiver requirements, including monitoring, will be prioritized.

Settlement Funds
Settlement funds are another resource that could potentially be used to support establishment of the Cooperative Monitoring Program. Existing PG&E Settlement Funds that are available to support monitoring of agricultural practices in the lower Salinas and Elkhorn Slough areas, and Guadalupe settlement funds that are available in the southern part of the Region could support monitoring at sites in those respective areas that are part of the waiver monitoring network. Settlement funds may also be used as match to leverage upcoming Agricultural Water Quality Grant program funds that provide for implementation and monitoring in agricultural areas, thus reducing initial costs of starting up the cooperative monitoring program. Under the grant program, management practice implementation by farmers to implement the waiver can qualify as match for funds to implement the monitoring program.

RESPONSE TO COMMENTS

A large number of comment letters were received in response to the workshops and the Initial Study and Negative Declaration prepared under CEQA. Staff's response to comments received on the CEQA documents and the proposed Conditional Waiver and proposed Monitoring and Reporting Program are included as Attachment 6.

ATTACHMENTS

1. Revised Initial Study and Negative Declaration for Conditional Waiver of Waste Discharges from Irrigated Lands
2. Resolution R3-2004-0118 Adopting the Negative Declaration
3. Order R3-2004-0117, Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands
4. Monitoring and Reporting Program R3-2004-0117
5. Anticipated cooperative monitoring costs under four scenarios
6. Response to comments
7. Comment letters

RECOMMENDATION

Staff recommends that the Regional Board approve Resolution R3-2004-0118 adopting the Negative Declaration; adopt Order R3-2004-0117, Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands; and adopt Monitoring and Reporting Program R3-2004-0117.

S\\NPS\Ag Waiver \Ag waiver drafts\July drafts\Staff Report for July ver05 FINAL

EXHIBIT E

California Regional Water Quality Control Board
Central Coast Region

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906
(805) 549-3147 • Fax (805) 543-0397
http://www.waterboards.ca.gov/centralcoast

Linda S. Adams.
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

December 12, 2008

Dear Agricultural Advisory Panel Participant:

The Central Coast Water Board invites you to participate in the renewal of the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (Irrigated Ag Order). The existing Order expires in July 2009 and must be renewed, revised or replaced. When we bring the Irrigated Ag Order to the Water Board for consideration in 2009, I will propose specific revisions to clarify existing requirements, and new requirements where necessary to directly address and resolve the major water quality issues associated with irrigated agriculture in our Region. These revisions will include time schedules to achieve compliance, milestones, and compliance verification monitoring to address each issue (surface and groundwater pollution, erosion and sedimentation, and habitat degradation). This letter briefly summarizes the main water quality issues we will address, and requests your participation in a series of meetings with us to discuss the Irrigated Ag Order revisions I will propose to the Water Board in July 2009.

The requirements, time schedules, milestones, and compliance verification monitoring I will include in the draft Irrigated Ag Order are similar to the requirements we include in other permits, waivers, Total Maximum Daily Load Orders (TMDLs), Stormwater Management Plans, Timber Harvest Plans, and other regulatory tools. This approach is also necessary to comply with the State and Regional Boards' 2004 Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program. Our approach is based on this Policy, so I ask that you read the Policy prior to our Ag Advisory Panel meetings, especially the section beginning on page 11, titled "The Key Elements of an NPS Pollution Control Implementation Program." You can review the Policy on-line at:
http://www.waterboards.ca.gov/water_issues/programs/nps/docs/oalfinalcopy052604.doc

Clarifying Water Quality Requirements in the Irrigated Ag Order

The draft Irrigated Ag Order will clarify how growers and property owners will comply with existing requirements, and will include new requirements where necessary to achieve compliance. The Irrigated Ag Order will be revised to require growers and property owners to demonstrate compliance with the following conditions per defined schedules:

- Eliminate toxic discharges of agricultural pesticides to surface waters and groundwater
- Reduce nutrient discharges to surface waters to meet nutrient standards
- Reduce nutrient discharges to groundwater to meet groundwater standards
- Minimize sediment discharges from agriculture lands
- Protect aquatic habitat (riparian areas and wetlands) and their buffer zones

Defining specific requirements, time schedules, milestones, and verification monitoring in the Irrigated Ag Order for each issue above ensures that the regulated community understands its obligations to meet discharge requirements and its role in helping to achieve water quality objectives and protect resources, while allowing reasonable time to reach full compliance. We

understand that these requirements will not be achieved in a short time frame. The purpose of defining schedules and verification monitoring is to ensure that reasonable progress is being made towards compliance and that growers understand their obligation to comply with water quality requirements.

Water Quality Issues

Below is a brief summary of the major water quality issues associated with irrigated agriculture in our Region, based on data from our office's Central Coast Ambient Monitoring Program, the Bay Protection and Toxic Cleanup Program, the agricultural Cooperative Monitoring Program, and extensive research done in several of our watersheds. We recognize the effort the Cooperative Monitoring Program has made to ensure farmers are aware of these water quality problems. Some growers are changing practices in response to information provided by the Cooperative Monitoring Program, outreach coordinators, and technical assistance providers, and we appreciate these efforts. Other growers are not making progress, and severe water quality problems continue. The high levels of nitrate and significant amount of toxicity we see at many sites, along with habitat degradation and the documented removal of vegetation that can protect water quality, make it imperative that we aggressively address these problems.

Pesticide Toxicity

The Cooperative Monitoring Program has found the pesticides chlorpyrifos and diazinon at concentrations that exceed water quality objectives, at concentrations known to cause toxicity, and these data and data from several other researchers indicate that these two chemicals are responsible for much of the widespread water toxicity found in watersheds where agriculture is the dominant land use. In addition, the Cooperative Monitoring Program has documented widespread sediment toxicity at many of its sites. Although the CMP has yet to follow up on this problem with chemical monitoring, related research in the area has pointed to pyrethroid pesticides, as well as chlorpyrifos, as primary sources of toxicity. There are data showing high toxicity in water and sediment from agriculture-dominated surface waters in our region, and concurrent impacts on benthic macroinvertebrate communities. The Central Coast Water Quality Control Plan (Basin Plan) specifically prohibits discharges of waste containing substances that cause or contribute to toxicity or which produce detrimental physiological effects in aquatic life.

Nutrients/Nitrate

Groundwater and surface water salt and nitrate pollution is prevalent in some agricultural areas within our region. The Basin Plan prohibits discharges that could result in groundwater or surface water nitrate concentrations above 45 milligrams per liter (mg/L) as nitrate, or 10 mg/L as nitrogen. Thirty out of the 50 Cooperative Monitoring sites consistently exceed water quality standards for nitrate. In addition, constituents such as orthophosphate consistently exceed recommended levels in some areas. Nitrate levels necessary to protect aquatic life are substantially less than the limits noted above, which further illustrates the magnitude of the problem.

Nutrient discharges may contribute to algal blooms in both fresh and saltwater environments. These nutrient induced algal blooms are a major impact to aquatic life over large geographic areas, and are becoming more intense and more prevalent in some areas.

Sediment
Sediment eroding off bare ditch banks and farm fields contribute directly to water quality impairment, through the sediment itself and by carrying attached pesticides and other constituents. Minimizing sediment movement from farm fields and ditches is a critical requirement for protecting water quality.

Habitat Degradation
Land use management activities have significantly degraded aquatic habitat (riparian areas and wetlands) throughout the Central Coast and California. For example, over 90% of wetlands have been lost in California over the past 100 years. Healthy riparian habitat and wetlands, including buffer zones, are critical to protect the beneficial uses of our waters. They help to reduce flood impacts by helping to attenuate peak flood flows, recharge groundwater, stabilize streambanks, provide critical habitat for a wide diversity of wildlife, and filter nutrients and pathogens, among many other benefits. The Basin Plan requires the protection of riparian habitat and the maintenance of adequate buffer zones. The food safety issue has resulted in some growers removing riparian habitat and buffer zones on and around irrigated agricultural fields, which is a direct violation of the Basin Plan.

Verifying Compliance
In addition to the Cooperative Monitoring Program, we will also include a tiered compliance verification monitoring program in the Irrigated Ag Order. The tiered monitoring program will range from minimal monitoring requirements for growers who are already in compliance or who are making significant progress in reducing pollutant discharges, to comprehensive monitoring for growers who are not in compliance or not making progress toward compliance with discharge requirements. We will work with the Panel to develop reporting tools and a tiered structure that focuses on threats to water quality, known water quality problems, and other factors. This approach is similar to the tiered monitoring program we developed for timber harvesting and the scaled monitoring efforts we require for other dischargers. Verification monitoring may incorporate several elements, including management practice reporting, photomonitoring, and individual water quality testing.

Proposed Renewal Process
We request the help of the Agricultural Advisory Panel in developing appropriate milestones, timetables, and verification monitoring requirements to reach the required goals, all of which will be incorporated in our recommendations to the Central Coast Water Board for an improved Irrigated Ag Order.

We also request the help of the Panel in making other improvements to the Irrigated Ag program. Based on prior input received from the Panel and from Water Board staff and management, topics for discussion include additional education requirements, outreach strategies, farm planning and assessment, enforcement strategies, and monitoring program

modifications. Panel members may wish to add other topics. We value your insight and we need your assistance in developing practical methods to achieve our mutual goals.

As part of the Irrigated Ag Order renewal process, Water Board staff will work with the Panel to develop recommendations to staff. The Panel will develop ground rules for working together and Panel recommendations will be based on the consensus of Panel members. Staff may provide draft language or work with the panel to develop language. I will consider all recommendations from the Panel.

Proposed Schedule of Meetings

We propose to hold approximately five meetings of the Panel between December 2008 and April 2009. The Panel may wish to recommend additional meetings or the formation of subcommittees to work on specific topics as a way to make the best use of the Panel's time.

Panel Membership

Attached is a table of participants and their affiliations. Please review the list for errors and let us know if corrections are needed. In some cases we have included alternates. We believe the process will be best if one representative attends all meetings but this may not always be possible. We have attempted to contact as many interested parties as possible. Some of those contacted felt that their interests were adequately represented by the panel and asked only to be kept informed. We have also attempted to limit the size of the group, in order to facilitate discussion and exchange of views, yet include as broad a representation as possible. Upon reviewing the list, if you feel that some important representation is missing, please contact us.

We will hold the initial Panel meeting at the Central Coast Water Board offices in San Luis Obispo on December 18, 2008, from 10 am until 3 pm. Staff will provide an agenda and meeting materials prior to the meeting.

The first five years of the Irrigated Ag Program have been challenging but also rewarding. The support of the agricultural and environmental communities in developing the program has been a vital part of the progress we have made to date. We thank you for your willingness to continue working on these important issues and look forward to working with you to make additional progress in improving water quality.

If you have questions, please contact Alison Jones of my staff, at (805) 542-4646.

Sincerely,

Roger W. Briggs
Executive Officer

S:\\NPS\Agriculture Waiver\Program Management\Ag Waiver Renewal\Letter of Invitation 12-08 FINAL

EXHIBIT F

December 2, 2009

Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401

RE: <u>Stakeholder Process for Renewing the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands</u>

Dear Board Members:

This letter describes our organizations' experience with the existing Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Ag Order). In particular, we will discuss what has and what has not worked with the existing Ag Order, and how the Ag Order has served to improve water quality in the Central Coast Region. This letter will also address staff's proposed Public Input Process and Schedule.

The Environmental Defense Center (EDC) is a non-profit public interest law firm that represents community organizations in environmental matters affecting California's south central coast. EDC protects and enhances the environment through education, advocacy and legal action.

Monterey Coastkeeper (MCK) protects the water, watersheds and coastal ocean for the benefit of wildlife and human populations alike. MCK serves Monterey and Santa Cruz counties including the northern Salinas and Pajaro river basins.

Santa Barbara Channelkeeper (SBCK) is a non-profit environmental organization dedicated to protecting and restoring the Santa Barbara Channel and its watersheds through citizen action, education, field work and enforcement. Channelkeeper has nearly ten years of experience in conducting citizen water quality monitoring activities in agricultural watersheds.

EDC, SBCK and MCK all participated in the original stakeholder process which informed the existing Ag Order, and we have participated in the recent stakeholder process convened by your staff to discuss the next iteration of the Ag Order.

Environmental Defense Center
906 Garden Street
Santa Barbara, CA 93101

Monterey Coastkeeper
475 Washington St., Suite A
Monterey, CA 93940

Santa Barbara Channelkeeper
714 Bond Avenue
Santa Barbara, CA 93103

I. What Worked In The Existing Ag Order?

Perhaps the greatest success of the existing Ag Order has been educating the agricultural community about how agricultural operations contribute to water quality impacts.

The work done by Preservation, Inc. has also been invaluable. The Cooperative Monitoring Program has identified impairments and shown trends in water quality.

While it may be difficult to quantify actual improvements in water quality as a result of the existing Ag Order, there is evidence that better farm management practices have alleviated some agricultural impacts.

II. What Did Not Work In The Existing Ag Order?

While the existing Ag Order has demonstrated success, we believe that certain areas still need improvement.

Enforcement

A serious problem under the existing Ag Order is a lack of adequate enforcement on both enrolled and non-enrolled growers. Currently, there exists no database of growers and the actual plots they farm. Without such a database, it is impossible to enforce enrollment.

Lack of water quality standards to determine compliance – The current program requires that Best Management Practices (BMPs) be implemented on-site to minimize the quantity of and improve the quality of agricultural discharges. BMP implementation, however, varies from site to site by necessity depending on site-specific concerns. As a result, without defined water quality standards for discharges to surface and groundwater, it is impossible to determine whether or not agricultural operations are contributing to exceedences of basin plan objectives in surface water bodies.

Inadequate attention to stormwater discharges – The current program lacks standards and mechanisms pertaining to stormwater discharges. Section 40 of the existing Ag Order states that "the goal of these combined practices should be to minimize stormwater runoff for the first half-inch of rain during each storm, and to reduce runoff for the first one-and-a-half inches of rain during each storm." The Ag Order, however, does not define the difference between the words 'minimize' and 'reduce' and describes no method to determine whether compliance is being achieved. Crops such as strawberries are especially problematic, as they are mostly covered with impervious plastic during the rainy season which increases water volumes and velocities running through furrows and ditches.

There is particularly a gap in the current program when it comes to stormwater discharges from fallow agricultural fields. BMPs are frequently not implemented when agricultural fields are not in operation. However, from a stormwater quality perspective, fallow agricultural fields present a similar risk to surface water quality as would a large construction site. The lack of specific language describing requirements for stormwater management of fallow fields is a significant gap in the existing program.

Inadequate protection of aquatic habitats -- The existing Ag Order expresses no vision for maintenance of vegetated buffer areas between farm fields and aquatic habits. With the current focus on 'food safety' there are documented cases of removal of riparian vegetation. The riparian corridor along our creeks and rivers is the ultimate vegetated buffer before runoff enters our open waters. These riparian areas offer many public benefits including improvement of water quality.

Water Quality Monitoring

Lack of individual discharge monitoring - While the Cooperative Monitoring Program (CMP) has produced useful data, a critical weakness in the existing Ag Order is a lack of individual discharge monitoring. The existing Order is directed at improving the quality and reducing the quantity of agricultural discharges, however, agricultural discharges are not regularly monitored as a part of the CMP. The ambient data produced through the CMP does allow the Regional Board and stakeholders to identify general long-term water quality trends, however it does not allow us to determine whether the current program is successfully improving water quality.

To date, the only assertions[1] based on CMP data that the current program is producing water quality benefits have been based upon a statistically significant downward trend in summer stream flows at a selection of CMP monitoring sites. This assertion, however, fails to acknowledge that seasonal fluctuations in stream flow are also directly and heavily influenced by a number of other factors such as trends in annual precipitation, pumping, and the use of water diversions. Without discharge monitoring data, it will remain impossible to attribute such changes or improvements to the existing waiver program. While the authors of this letter are confident that improvements have occurred throughout the region, the current monitoring program fails to provide information allowing us to verify and quantify those improvements.

Inadequate dissolved oxygen measurements - The CMP currently collects dissolved oxygen measurements in the middle of the day. Due to diurnal fluctuations in dissolved oxygen, measurements collected in the middle of the day do not accurately diagnose potential anoxic conditions and are actually misleading. In order for such measurements to be valid they must occur during periods when dissolved oxygen can be expected to be at a minimum, usually before dawn. Ideally, such measurements would be collected continuously throughout the day to capture the extent of diurnal fluctuation.

[1] October 23, 2009. Joint Letter to Mr. Jeffery Young from some members of the Ag Advisory Panel.

SBCK has conducted numerous studies[2] that demonstrate the importance of timing in dissolved oxygen monitoring (Figure 1). Since nutrient impairments are one of the major issues facing water bodies throughout our region, the monitoring program needs to collect information that will determine whether or not eutrophication from nutrient enrichment is occurring. This is a major flaw in the current monitoring program.

Lack of groundwater monitoring data – There is a widespread gap in the availability of groundwater quality data throughout the region. Groundwater is directly linked to surface water quality through surface-to-groundwater interactions and through tail water discharges. Without groundwater data, the Regional Board and stakeholders are unable to evaluate whether the current program is improving groundwater quality over time. Without groundwater quality data, it is also impossible for growers to make certain informed decisions regarding nutrient management. As the Regional Board heard at its July meeting in Watsonville, entire communities can no longer use their well water due to nutrient and chemical pollution. Groundwater contamination is a critical yet neglected issue.

Reporting

Similarly, the water quality data that is received by Central Coast Region staff is not always complete or available in a useful format. Part of this problem stems from a lack of on-farm data. The information also has not been made generally available to the public. This has affected the Ag Order's enforcement regime by precluding other organizations with expertise in agriculture, water quality and/or environmental protection from participating in the regulatory program.

Enrollment

Finally, while enrollment numbers are high, there are significant numbers of growers and operations that are not enrolled in the existing Ag Order. For the program to be ultimately successful there must be a higher rate of participation. It is far too easy for a small number of bad actors to spoil an otherwise productive regulatory program. It is inaccurate to state that any percentage of the dischargers or any percentage of the land is enrolled. The reality is that we don't really know. Without better data it is impossible to identify the gaps.

Little or no work has been done to determine what percentage of enrolled farms have completed their educational requirements and/or are implementing good practices. Submission of the farm plan is not required, only an annual checklist is submitted.

Major crops, such as strawberries, are apparently regulated contrary to the existing Ag Order. Apparently the coolers enroll, and neither the property owner nor

[2] http://www.stream-team.org/venturaalgae.html.

grower are required to enroll or participate. We have no idea if the cooler exercises any control over beneficial water quality control practices on the ground.

III. Public Input Process and Schedule

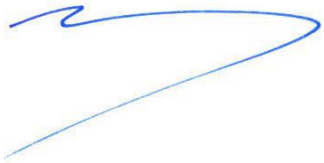
We support the schedule that has been proposed by staff and attached to your Board Letter as Attachment 3. We are, however, concerned that the California Environmental Quality Act (CEQA) process may take longer than suggested. Environmental review under CEQA is an important and necessary component of your decision-making process and should inform the new Ag Order. It is important that the process not be drawn out too long. We initially expected a new Ag Order to be promulgated in July of this year, and the Board should not wait too much longer to address the above concerns that we have raised about the existing Ag Order. We do support a thorough and open process that allows time between iterations of the new order. We would prefer to see fewer iterations with more time given to review each new version.

Conclusion

We appreciate this opportunity to participate in the Ag Order renewal process, and we have appreciated being part of the (now defunct) advisory panel. The Central Coast Region and its agriculturalist constituents should be proud of the work that has been done on and under the existing Ag Order so far. There is certainly room for improvement, and we are confident that our concerns will be addressed in the new Ag Order being prepared by your staff.

If you have any questions, please do not hesitate to contact any of our organizations.

Sincerely,



Nathan G. Alley
Staff Attorney, Environmental Defense Center

Ben Pitterle
Santa Barbara Channelkeeper

Steve Shimek
Executive Director, Monterey Coastkeeper

Figure 1. Ventura River diel dissolved oxygen and pH measurements collected from April through September of 2008. Note differences in dissolved oxygen concentration of up to 11 mg/L between pre-dawn and afternoon measurements from anoxic (< 5mg/L) to super-saturated conditions.

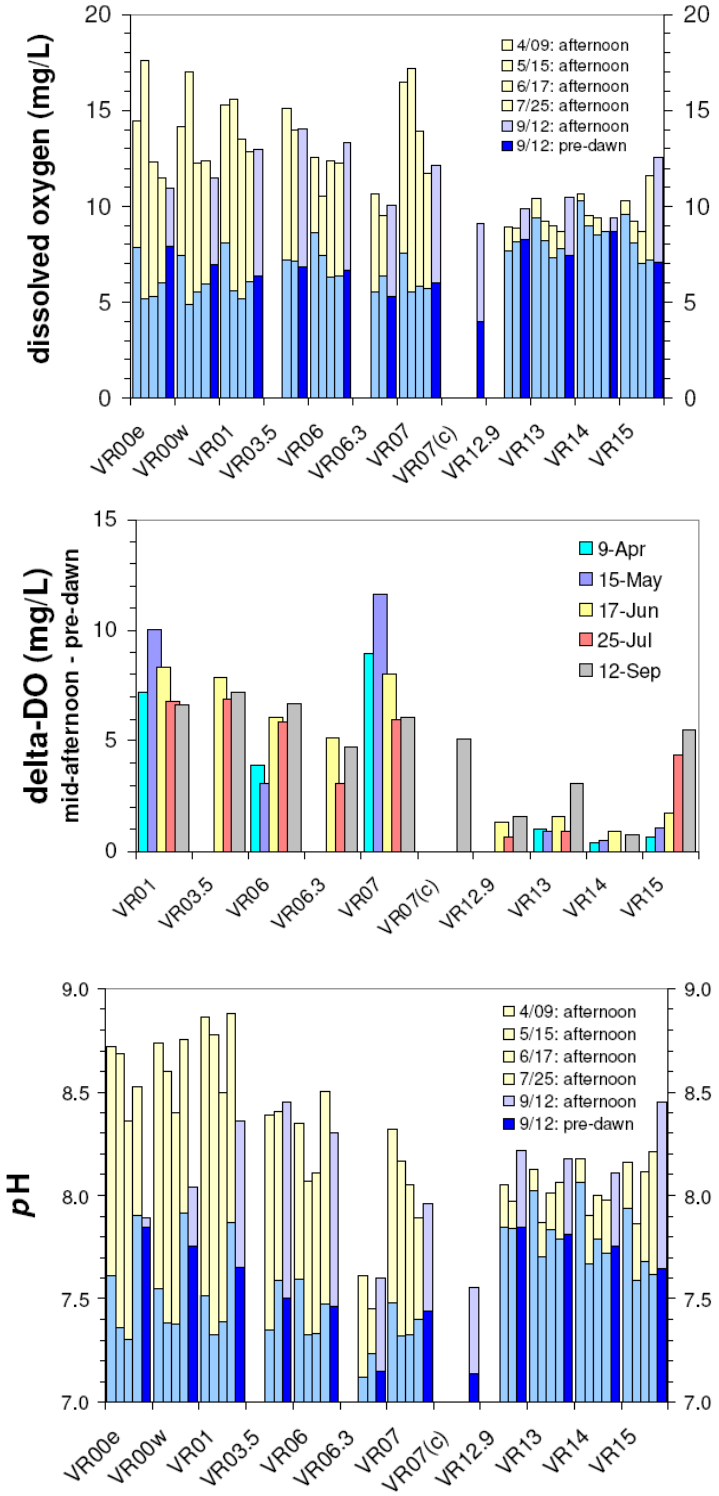


EXHIBIT G

Attachment 3

Preliminary Draft Report Staff Recommendations For Agricultural Order

PRELIMINARY DRAFT AGRICULTURAL ORDER NO. R3-2010-00XX

CONDITIONAL WAIVER FOR IRRIGATED AGRICULTURE OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

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GENERAL FINDINGS

The California Regional Water Quality Control Board, Central Coast Region finds that:

I. BACKGROUND AND PURPOSE

1. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) are the principal state agencies with primary responsibility for the coordination and control of water quality pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The legislature, in the Porter-Cologne Act, directed the Water Board to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation, considering precipitation, topography, population, recreation, agriculture, industry, and economic development. (Water Code § 13000)

2. On July 9, 2004, the Central Coast Regional Water Quality Control Board (Central Coast Water Board) adopted Resolution No. R3-2004-0117 establishing a *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (2004 Conditional Waiver). In the 2004 Conditional Waiver, the Central Coast Water Board found that the discharge of waste from irrigated lands has degraded and polluted the waters of the State and of the United States within the Central Coast Region, has impaired the beneficial uses, and has caused nuisance. Since the adoption of the 2004 Conditional Waiver, the Central Coast Water Board has documented that discharges of waste from irrigated lands continue to degrade water quality and impair beneficial uses. Such wastes include nutrients, toxic compounds, and other constituents found in fertilizers, pesticides, and sediment. Activities that have resulted in the discharges of waste that degrade water quality and impair beneficial uses include farm management practices and removal and degradation of riparian and wetland habitat. The 2004 Conditional Waiver expired on July 9, 2009 and the Central Coast Water Board renewed it for a term of one year until July 10, 2010. This Order No. R3-2010-00XX (Order) revises the 2004 Conditional Waiver as set forth herein.

3. Water Code Section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the State, other than into a community sewer system, shall file with the appropriate Regional Board a report of waste discharge (ROWD) containing such information and data as may be required by the Central Coast Water Board, unless the Central Coast Water Board waives such requirement.

4. Water Code Section 13263 requires the Central Coast Water Board to prescribe waste discharge requirements (WDRs), or waive WDRs, for the discharge. The WDRs must implement relevant water quality control plans and the Water Code.

5. Water Code Section 13269(a) provides that the Central Coast Water Board may waive the requirements to submit a ROWD and to obtain WDRs for a specific discharge or specific type of discharge, if the Central Coast Water Board determines that the waiver is consistent with any applicable water quality control plan and such waiver is in the public interest, provided that any such waiver of WDRs is conditional, includes monitoring requirements unless waived, does not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board.

6. As authorized by Water Code Section 13269, this Order conditionally waives the requirement to file ROWDs and obtain WDRs for Dischargers who comply with the terms of this Order.

7. This Order directly addresses discharges of waste[1] from irrigated lands by requiring Dischargers to comply with the terms and conditions set forth in Attachment B, which is hereby incorporated into this Order, including compliance schedules to:

    a. Reduce nutrient discharges to surface waters and groundwater to meet applicable nutrient and biostimulatory water quality standards, and maintain existing high quality water;
    b. Reduce toxic discharges of agricultural pesticides to surface waters and groundwater to meet applicable toxicity water quality standards, and maintain existing high quality water;
    c. Reduce sediment discharges from agriculture lands to meet applicable standards, including turbidity and sediment water quality standards, and maintain existing high quality water;
    d. Protect aquatic habitat (riparian areas and wetlands) and meet applicable water quality standards including, but not limited to, temperature, turbidity, and dissolved oxygen, and maintain existing high quality water;

8. The Central Coast Water Board recognizes that Dischargers may not achieve immediate compliance with all requirements. Thus, this Order provides reasonable schedules for Dischargers to reach full compliance over many years by implementing management measures and monitoring and reporting programs that demonstrate and verify measurable progress annually. This Order includes specific dates to achieve water quality objectives in irrigation runoff and discharge to groundwater, and anticipates timeframes beyond the term of this Order to achieve water quality objectives in receiving water.

[1] This Order regulates discharge of "waste" as defined in Water Code section 13050 and "pollutants" as defined in the Clean Water Act. For simplicity, the term "waste" or "wastes" is used throughout. The term "waste" is very broad and includes "pollutants" as defined in the Clean Water Act.

9. The Central Coast Water Board is focusing on the highest water quality priorities and maximizing water quality protection to ensure the long-term reliability and availability of water resources of sufficient supply and quality for all present and future beneficial uses, including drinking water and aquatic life. Given the magnitude and severity of water quality impairment and impacts to beneficial uses caused by irrigated agriculture, and the significant cost to the public, the Central Coast Water Board finds it is reasonable and necessary to require specific actions to protect water quality.

10. Compliance with the 2004 Conditional Waiver has resulted in significant achievements, including a high percentage of Discharger enrollment in the 2004 Conditional Waiver, implementation and participation in education and outreach programs, Discharger development and implementation of Farm Water Quality Management Plans (Farm Plans), and implementation of cooperative water quality monitoring at the watershed scale. The 2004 Conditional Waiver did not emphasize compliance with water quality standards and did not include monitoring to measure and assure restoration of water quality and protection of beneficial uses.

11. This Order regulates discharges from irrigated lands to ensure that such discharges do not cause or contribute to the exceedance of any Regional, State, or Federal numeric or narrative water quality standard in waters of the State and of the United States.

12. According to Water Code Section 13263(g), the discharge of waste to waters of the State is a privilege, not a right. It is the responsibility of dischargers of waste from irrigated lands to comply with the Water Code by seeking WDRs or by complying with a waiver of WDRs. This Order waiving the requirement to submit a ROWD and the requirement to obtain WDRs provides a mechanism for dischargers of waste from irrigated lands to meet their responsibility to comply with the Water Code and to prevent degradation of waters of the State, prevent nuisance, and to protect the beneficial uses. Dischargers are responsible for the quality of surface waters and ground waters that have received discharges of waste from their irrigated lands.

<u>Agricultural and Water Resources in the Central Coast Region</u>

13. The Central Coast Region has more than 17,000 miles of surface waters (linear streams/rivers) and approximately 4000 square miles of groundwater basins.

14. In the Central Coast Region, nearly all agricultural, municipal, industrial, and domestic water supply comes from groundwater. Groundwater supplies approximately 90 percent of the drinking water on the Central Coast. Currently, more than 700 municipal public supply wells in the Central Coast Region provide drinking water served to the public by cities, counties, and local water agencies. In addition, based on 1990 census data, there are more than 40,000 permitted private wells, most providing domestic drinking water to rural households and communities

from shallow sources. The number of private domestic has likely significantly increased in the past 20 years.

15. In the Salinas, Pajaro, and Santa Maria groundwater basins, agriculture accounts for approximately 80 to 90 percent of groundwater pumping.

16. The Central Coast Region supports some of the most significant biodiversity of any temperate region in the world and is home to the last remaining population of the California Sea Otter, three sub-species of threatened or endangered Steelhead (Oncorhynchus mykiss) and one sub-species of endangered Coho Salmon (Oncorhynchus kisutch). The endangered marsh sandwort (Arenaria paludicola), Gambel's watercress (Nasturtium rorippa gambelii), California least tern (Sterna antillarum browni), and threatened red-legged frog (Rana aurora) are present in the region.

17. Several watersheds drain into Monterey Bay National Marine Sanctuary, one of the largest marine sanctuaries in the world. Elkhorn Slough, is one of the largest remaining tidal wetlands in the United States and one of the National Oceanic and Atmospheric Administration (NOAA) designated National Estuarine Research Reserves. The southern portion includes the Morro Bay National Estuary and extensive salt marsh habitat.

18. The two endangered plants, marsh sandwort and Gambel's watercress are critically imperiled and their survival depends upon the health of the Oso Flaco watershed. The last remaining known population of marsh sandwort and one of the last two remaining known populations of Gambel's watercress occur in Oso Flaco Lake.

19. The Central Coast of California is one of the most productive and profitable agricultural regions in the nation, reflecting a gross production value of more than six billion dollars in 2008, contributing more than 14 percent of California's agricultural economy. The region 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. An adequate water supply of sufficient quality is critical to supporting the agricultural industry on the Central Coast.

20. The Central Coast Region has approximately 435,000 acres of irrigated land and more than 3000 agricultural operations. Substantial empirical data show that agricultural discharges and land use practices are adversely affecting the quality of waters of the State and degrading designated beneficial uses. Water Code Section 13050 defines waters of the State to be any surface water or groundwater within the boundaries of the State.

21. Existing and potential water quality impairment from agricultural discharges takes on added significance and urgency, given the impacts on public health, limited

sources of drinking water supplies and proximity of the region's agricultural lands to critical habitat for species of concern.

II. SCOPE OF ORDER NO. R3-2010-00XX

Irrigated Lands and Agricultural Discharges Regulated Under this Order

22. This Order regulates discharges of waste from irrigated lands where water is applied for producing commercial crops and includes, but is not limited to, land planted to row, vineyard, field and tree crops. This Order also regulates discharges of waste from commercial nurseries, nursery stock production and greenhouse operations with soil floors that do not have point-source type discharges, and are not currently operating under individual WDRs. Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Order.

23. Discharges from irrigated lands regulated by this Order include discharges of waste to surface water and groundwater, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills. These discharges can contain wastes that could affect the quality of waters of the State and degrade beneficial uses.

Dischargers Regulated Under this Order

24. This Order regulates both landowners and operators (Dischargers) of irrigated lands on or from which there are discharges of waste that could affect the quality of any surface water or groundwater. Dischargers are responsible for complying with the requirements of this Order. The Central Coast Water Board will hold both the landowner and the operator liable for noncompliance with this Order.

25. Dischargers must submit to the Central Coast Water Board a completed Notice of Intent (NOI) to comply with the conditions of this Order and receive a Notice of Enrollment from the Executive Officer of the Central Coast Water Board to be considered in compliance with the Water Code.

26. Landowners and operators of irrigated lands who obtain a pesticide use permit from a local County Agricultural Commissioner may have a discharge of waste that could affect surface water and groundwater and therefore must submit to the Central Coast Water Board a completed NOI to comply with the conditions of this Order and

receive a Notice of Enrollment from the Executive Officer of the Central Coast Water Board to be considered in compliance with the Water Code.

Agricultural Discharges Not Covered Under this Order and Who Must Apply for Individual Waste Discharge Requirements

27. This Order does not waive WDRs for commercial nurseries, nursery stock production and greenhouse operations that have point-source type discharges, and fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors). These operations must eliminate all such discharges of wastes or submit a ROWD to apply for individual WDRs.

III. LEGAL AND REGULATORY CONSIDERATIONS

28. Attachment A to this Order identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory requirements that apply to the discharge of waste from irrigated lands. Attachment A provides definitions of terms for purposes of this Order.

29. The Porter-Cologne Act grants authority to the State Water Board with respect to State water rights and water quality regulations and policy, and establishes nine Regional Water Boards with authority to regulate discharges of waste that could affect the quality of waters of the State and to adopt water quality regulations and policy.

30. As further described in this Order, discharges from irrigated lands affect the quality of the waters of the State depending on the quantity of the discharge, quantity of the waste, the quality of the waste, the extent of treatment, soil characteristics, distance to surface water, depth to groundwater, crop type, implementation of management practices and other site-specific factors. Discharges from irrigated lands have impaired and will continue to impair the quality of the waters of the State within the Central Coast Region if such discharges are not controlled.

31. Water Code Section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the State, other than into a community sewer system, shall file with the appropriate Regional Board a ROWD containing such information and data as may be required by the Central Coast Water Board, unless the Central Coast Water Board waives such requirement.

32. Water Code Section 13263 requires the Central Coast Water Board to prescribe WDRs, or waive WDRs, for the discharge. The WDRs must implement applicable water quality control plans and the Water Code.

33. Water Code Section 13267(b)(1) authorizes the Central Coast Water Board to require dischargers to submit technical reports necessary to evaluate Discharger compliance with the terms and conditions of this Order and to assure protection of waters of the State.

34. Water Code Section 13269(a) provides that the Central Coast Water Board may waive the requirements to submit a ROWD and to obtain WDRs for a specific discharge or specific type of discharge, if the Central Coast Water Board determines that the waiver is consistent with any applicable water quality control plan and such waiver is in the public interest.

35. Water Code Section 13269 further provides that any such waiver of WDRs shall be conditional, must include monitoring requirements unless waived, may not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board or Executive Officer.

36. Water Code Section 13269(a)(4)(A) authorizes the Central Coast Water Board to include as a condition of a Conditional Waiver the payment of an annual fee established by the State Water Board. California Code of Regulations, Title 23, Division 3, Chapter 9, Article 1, and Section 2200.3 sets forth the applicable fees. This Order requires each Discharger to pay an annual fee to the State Water Board in compliance with the fee schedule in Title 23 of the California Code of Regulations Section 2200.3.

37. The Water Quality Control Plan for the Central Coast Basin (Basin Plan) designates beneficial uses, establishes water quality objectives, contains programs of implementation needed to achieve water quality objectives, and references the plans and policies adopted by the State Water Board. The water quality objectives are required to protect the beneficial uses of waters of the State identified in Attachment A.

38. This Order is consistent with the Basin Plan because it requires Dischargers to comply with applicable water quality standards, as defined in Attachment A, and requires terms and conditions, including implementation of management practices as defined in Attachment B. The Order also requires monitoring and reporting as defined in Monitoring and Reporting Program (MRP) No. R3-2010-00XX to determine the effects of discharges of waste from irrigated lands on water quality, verify the adequacy and effectiveness of this Order's terms and conditions, and to evaluate individual Discharger's compliance with this Order.

39. Water Code Section 13246 requires boards, in carrying out activities that affect water quality to comply with State Water Board policy for water quality control. This Order requires compliance with applicable State Water Board policies for water quality control.

40. This Order implements and complies with the requirements of the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Policy) adopted by the State Water Board in May 2004. The NPS Policy requires, among other key elements, that an NPS control implementation program's ultimate purpose shall be explicitly stated, and that the implementation program must, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable anti-degradation requirements. The NPS Policy improves the State's ability to effectively manage NPS pollution and conform to the requirements of the Federal Clean Water Act and the Federal Coastal Zone Act Reauthorization Amendments of 1990. The NPS Policy provides a bridge between the State Water Board's January 2000 *NPS Program Plan* and its 2002 *Water Quality Enforcement Policy*. The NPS Policy's five key elements are:

    a. Key Element #1 - Addresses NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses
    b. Key Element #2 - Includes an implementation program with descriptions of the Management Practices (MPs) and other program elements and the process to be used to ensure and verify proper MP implementation
    c. Key Element #3 - Includes a specific time schedule, and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements
    d. Key Element #4 - Contains monitoring and reporting requirements that allow the Water Board, dischargers, and the public to determine that the program is achieving its stated purpose(s) and/or whether additional or different MPs or other actions are required
    e. Key Element #5 - Clearly discusses the potential consequences for failure to achieve an NPS control implementation program's stated purposes

41. This Order requires Dischargers to maintain the high quality waters of the State and does not authorize further degradation of waters of the State, consistent with State Water Board Resolution No. 68-16 *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution No. 68-16). Resolution No. 68-16 requires Regional Water Boards, in regulating the discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in a Regional Water Board's policies (e.g., quality that exceeds applicable water quality standards). The Regional Water Boards must require discharges to be subject to best practicable treatment or control of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with maximum benefit to the people of the State.

42. This Order is consistent with State Water Board Resolution 68-16. This Order requires Dischargers to 1) implement and evaluate management practices that will

result in achieving compliance with the terms and conditions of this Order and applicable water quality standards in the waters of the State; 2) to develop and implement a Farm Plan, as described in Attachment B, when discharges are causing or contributing to exceedances of applicable water quality standards; 3) conduct activities in a manner to prevent nuisance, and 4) conduct activities required by MRP Order No. R3-2010-00XX and revisions thereto.

IV. RATIONALE FOR THIS ORDER

43. On April 15, 1983, the Central Coast Water Board approved a policy allowing waivers of WDRs for 26 categories of discharges, including irrigation return flows and non-NPDES stormwater runoff. Pursuant to Water Code Section 13269, these waivers terminated on January 1, 2003.

44. On July 9, 2004, the Central Coast Water Board adopted Resolution No. R3-2004-0117 establishing the 2004 Conditional Waiver.

45. Dischargers enrolled in the 2004 Conditional Waiver established the Cooperative Monitoring Program (CMP) in compliance with monitoring requirements. The CMP collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds and identified severe surface water quality impairments resulting from agricultural land uses and discharges. CMP did not attempt to identify the individual farm operations that are causing the surface water quality impairments. The lack of discharge monitoring and reporting, the lack of verification of on-farm water quality improvements, and the lack of public transparency regarding on-farm discharges, are critical problems, especially given the scale and severity of the surface water and groundwater impacts and the resulting costs to society. These problems are addressed in this Order.

46. The 2004 Conditional Waiver expired on July 9, 2009. The Central Coast Water Board extended the 2004 Conditional Waiver to July 10, 2010 as documented in Order No. R3-2009-0050.

47. The Central Coast Water Board reviewed all available data, including information collected in compliance with the 2004 Conditional Waiver, and determines that discharges of waste from irrigated lands continue to result in degradation and pollution of surface water and groundwater, and impairment of beneficial uses, including drinking water and aquatic habitat, and determines that additional conditions are necessary to assure protection of water quality and to measure progress towards water quality improvement.

48. The Central Coast Water Board finds that it is appropriate to adopt a waiver of ROWDs and WDRs for this category of discharges because, as a group, the discharges have the same or similar waste from the same or similar operations and

use the same or similar treatment methods and management practices (e.g., source control, reduced agricultural surface runoff, reduced chemical use, holding times, cover crops, etc.).

49. The Central Coast Water Board finds that it is appropriate to regulate discharges of waste from irrigated lands under a Conditional Waiver rather than individual WDRs in order to simplify and streamline the regulatory process. Water Board staff estimate that there are more than 2500 individual owners and/or operators of irrigated lands who discharge waste from irrigated lands; therefore, it is not an efficient use of resources to adopt individual WDRs for all Dischargers within a reasonable time.

50. This Order is in the public interest because:

    a. The Order was adopted in compliance with Water Code Sections 13260, 13263, and 13269 and other applicable law;
    b. The Order requires compliance with water quality standards;
    c. The Order includes conditions that are intended to eliminate, reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the State;
    d. The Order contains more specific and more stringent conditions for protection of water quality compared to the 2004 Conditional Waiver;
    e. The Order contains conditions that are similar to the conditions of municipal stormwater NPDES permits, including evaluation and implementation of management practices to meet applicable water quality standards and a more specific MRP;
    f. The Order focuses on the highest priority water quality issues and most severely impaired waters;
    g. The Order provides for an efficient and effective use of Central Coast Water Board resources, given the magnitude of the discharges and number of persons who discharge waste from irrigated lands;
    h. The Order provides reasonable flexibility for the Dischargers who seek coverage under this Order by providing them with a reasonable time schedule and options for complying with the Water Code.

51. This Order waives the requirement to submit ROWDs and to obtain WDRs for discharges of waste from irrigated lands. This Order is conditional; may be terminated at any time; does not permit any illegal activity; does not preclude the need for permits that may be required by other State or local government agencies; and does not preclude the Central Coast Water Board from administering enforcement remedies (including civil liability) pursuant to the Water Code.

52. The Central Coast Water Board may consider issuing some individual WDRs to some Dischargers because of their actual or potential contribution to water quality impairments, history of violations, or other factors.

V. IMPACTS TO WATER QUALITY FROM AGRICULTURAL DISCHARGES

Impacts to Surface Water

53. The 2008 Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region adopted by the Central Coast Water Board in July 2009 (Impaired Waters List) identified surface water impairments for approximately 700 waterbodies related to a variety of pollutants (e.g. salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment.

54. The impact from agricultural discharges on surface water quality is or has been monitored by various monitoring programs, including:

    a. The Central Coast Water Board's Ambient Monitoring Program: Over the past 10 years, the Central Coast Ambient Monitoring Program (CCAMP) has collected and analyzed water quality data to address 25 conventional water quality parameters from 185 sites across the Central Coast Region to assess surface water quality. To support analysis of conventional water quality data CCAMP has collected bioassessment data from 100 of the 185 sites, water toxicity data from 134 of the 185 sites, and sediment toxicity from 57 of the 185 sites. CCAMP data show widespread toxicity and pollution from agricultural discharges.
    b. Cooperative Monitoring Program (CMP): Over the last 5 years, the CMP has focused on assessing agricultural water quality for the 2004 Conditional Waiver, and collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds. CMP data show widespread toxicity and pollution from agricultural discharges.

55. Data from CCAMP and CMP indicate that agricultural discharges most severely impact surface waterbodies in the lower Salinas and Santa Maria watersheds due to the intensive agricultural activity in these areas, and water quality in these areas are the most severely impaired in the Central Coast Region.

Impacts to Surface Water – Nutrients

56. Nitrate pollution in surface water is widespread in the Central Coast Region, with 46 waterbodies listed as impaired for this pollutant on Impaired Waters List. Seventy percent of all nitrate listings occur in the three major agricultural watersheds: Salinas River (15 waterbodies), Pajaro River (5 waterbodies) and Santa Maria River (12 waterbodies). Other significant nitrate listings fall in small drainages in areas of intensive agriculture or greenhouse activity along the south coast, including Arroyo Paredon, Franklin Creek, Bell Creek, Los Carneros and Glen Annie creeks.

57. The California Department of Public Health (CDPH) drinking water standard is 10 mg/L nitrate. The drinking water standard is not intended to protect aquatic life and Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation based on an evaluation of CCAMP data. Water Board staff used this criteria to evaluate surface water quality impairment to aquatic life beneficial uses in the Impaired Waters List adopted by the Central Coast Water Board in July 2009.

58. In a broadly scaled analysis of land uses, nitrate pollution is associated with row crop agriculture. In addition, discharge from even a single agricultural operation can result in adjacent creek concentrations exceeding the drinking water standard and the much lower limits necessary to protect aquatic life.

59. Agricultural discharges result in significant nitrate pollution in the major agricultural areas of the Central Coast Region. Thirty percent of all sites from CCAMP and CMP combined datasets have average nitrate concentrations that exceed the drinking water standard and limits necessary to protect aquatic life. Several of these water bodies have average nitrate concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the following:

    a. Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek),
    b. Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek),
    c. Lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain),
    d. Lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel),
    e. Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek).

60. Dry season flows decreased over the last 5 years in some agricultural areas that have large amounts of tailwater runoff. Detailed flow analysis by the CMP showed that 18 of 27 sites in the lower Salinas and Santa Maria watersheds had statistically significant decreases in dry season flow over the first five years of the program. Some sites that show increasing concentrations of nitrate have coincident declining trends in flow, possibly due to reductions in tailwater. CCAMP monitoring has detected declining flows at other sites elsewhere in the Region, likely because of drought.

61. Some statistically significant changes in nitrate concentration are evident in CCAMP and CMP data. Several drainages are improving in water quality in the Santa Barbara area (such as Bell Creek, which supports agricultural activities) and on Pacheco Creek in the Pajaro watershed. However, in some of the most polluted

waters, nitrate concentrations are getting worse at many sites. In the lower Salinas and Santa Maria watersheds, flow volumes are declining at some sites, so at these locations nitrate loads are not necessarily getting worse in spite of trends in concentrations.

62. Nitrate concentrations in Oso Flaco Lake exceed the levels that support aquatic life beneficial uses, threatening remaining populations of two endangered plants, marsh sandwort and Gambel's watercress. In 25 water samples taken from Oso Flaco Lake in 2000-2001 and 2007, levels of Nitrate/Nitrite (as N) averaged 30.51 mg/L with a minimum of 22.00 mg/L and a maximum of 37.10 mg/L. Biostimulation in Oso Flaco Lake has caused the rapid and extreme growth of common wetland species, which are now crowding out sensitive species that have not become similarly vigorous.

63. Agricultural discharges result in un-ionized ammonia concentrations at levels that are toxic to salmonids at some sites in areas dominated by agricultural activity. The waterbodies where these sites are located have been placed on the Impaired Waters List due to un-ionized ammonia, particularly in the lower Salinas and Santa Maria river areas.

Impacts to Surface Water – Toxicity

64. Agricultural use of pesticides in the Central Coast Region and associated toxicity is among the highest in the State. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation (DPR), the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected to be toxic and lethal to aquatic life (42 percent), and the highest rate (by three-fold) of active ingredients applied (113 lbs/acre).

65. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicated that toxicity resulting from agricultural discharges of pesticides has caused declining aquatic insect and macroinvertebrate populations in Central Coast streams.

66. The lower Salinas and Santa Maria areas have more overall water column invertebrate toxicity than other parts of the Central Coast Region, with much of the toxicity explained by elevated diazinon and chlorpyrifos concentrations.

67. Some agricultural drains have shown toxicity every time the drains are sampled. Researchers collaborating with CCAMP have shown that these toxic discharges can cause toxic effects in river systems that damage benthic invertebrate communities.

68. The most consistently toxic sites occur in the lower Salinas and Santa Maria watersheds, areas dominated by agricultural land uses. Creek bottom sediment is

toxic at most sites sampled in the Region (70 percent of all sites have been toxic at least once).

69. Research has shown pyrethroid pesticides are a major source of sediment toxicity in agricultural areas of the Central Coast Region.

Impacts to Surface Water – Turbidity and Temperature

70. Agricultural discharges cause and contribute to sustained turbidity in surface waters. Surface water flows at many sampling sites that include significant agricultural discharges exceed 100 Nephelometric Turbidity Unit (NTUs) as a median value. Turbidity is a cloudy condition in water due to suspended silt or organic matter. Waters that exceed 25 NTUs can reduce feeding ability in trout (Sigler et al., 1984). Elevated turbidity during the dry season is an important measure of discharge across bare soil, and thus can serve as an indicator of systems with heavy irrigation runoff to surface waters. Most CCAMP sites have a median turbidity level of under 5 NTUs.

71. The Basin Plan requires that "Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses."

72. Agricultural discharges result in sustained turbidity throughout the dry season at many sampling sites dominated by agricultural activities. Resulting turbidity greatly exceeds levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds. The CMP detected some declining trends in turbidity on the main stem of the Salinas River.

73. Agricultural discharges result in water temperatures that exceed levels that are necessary to support salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers.

74. Biological sampling shows that benthic biota are extremely impaired in the lower Salinas and Santa Maria watersheds, and also shows that several measures of habitat quality, such as in-stream substrate and canopy cover, are also very low compared to high quality streams in the Central Coast Region and in the upper watersheds.

75. Agricultural land use practices, such as removal of vegetation and stream channelization, and discharges from agricultural fields, cause the deposition of fine sediment and sand over stream bottom substrate. This problem is especially prevalent in areas dominated by agricultural activity (lower Salinas and Santa Maria rivers). This deposition of fine sediment and sand in streams causes major

degradation of aquatic life beneficial uses by degrading aquatic habitat and impacting biological communities.

Impacts to the Marine Environment

76. The marine environment in the Central Coast Region is impacted by runoff from irrigated agriculture and other sources. Legacy pesticides have impacted the marine environment and are still found in sediment and tissue at levels of concern today. Currently applied pesticides are persistent in the aquatic environment, but initial testing has not found them in offshore areas of Monterey Bay. However, two Marine Protected Areas (MPAs), Elkhorn Slough and Moro Cojo Slough, are heavily impacted by agricultural chemicals and activities because they are located at the downstream terminus of the Salinas River and Carneros Creek watersheds, and these watersheds are dominated by agricultural land use. The Elkhorn Slough and Moro Cojo Slough MPAs are at very high to extremely high risk for additional degradation of beneficial uses. Other MPAs that are relatively near shore in agricultural areas are at medium risk for degradation of beneficial uses; these include the South Santa Ynez River MPA, and the two Monterey Bay MPAs. Other MPAs that are not near agricultural areas are at medium to low risk from agricultural discharges.

Impacts to Groundwater – Drinking Water

77. Nitrate contamination of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the primary source of nitrate contamination of drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices.

78. Groundwater contamination from nitrate severely impacts public drinking water supplies in the Central Coast Region. A Department of Water Resources (DWR) survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast Region found that 17 percent of the wells (121 wells) detected a constituent at concentrations above one or more CDPH drinking water standards or primary maximum contaminant levels (MCLs). Nitrate caused the most frequent MCL exceedances (45 mg/L nitrate as nitrate or 10 mg/L nitrate as nitrogen), with approximately 9 percent of the wells (64 wells) exceeding the drinking water standard for nitrate. According to data reported by the State Water Board's Groundwater Ambient Monitoring and Assessment Program (GAMA), recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells impacted) and Santa Maria (approximately 17 percent) groundwater basins. In the Gilroy-Hollister Groundwater Basin, 11 percent are impacted, and the CDPH identified over half of the drinking water supply wells as vulnerable to discharges from agricultural-related activities. This information is readily tracked and evaluated because data is collected on a regular frequency,

made publicly available, and public drinking water supplies are regulated by CDPH as required by California law.

79. Groundwater contamination from nitrate severely impacts shallow domestic wells in the Central Coast Region resulting in unsafe drinking water in rural communities. Domestic wells (wells supplying one to several households) are typically drilled in relatively shallow groundwater, and as a result exhibit higher nitrate concentrations than deeper public supply wells. Water quality monitoring of domestic wells is not generally required and water quality information is not readily available; however, based on the limited data available, the number of domestic wells that exceed the nitrate drinking water standard is likely in the range of several hundreds or more. Private domestic well water quality is not regulated and it is estimated that thousands of rural residents drink water from these impaired sources without knowing the quality of drinking water and without treatment.

80. In the northern Salinas Valley, 25 percent of 352 wells sampled (88 wells) had concentrations above the nitrate drinking water standard. In other portions of the Salinas Valley, up to approximately 50 percent of the wells surveyed had concentrations above the nitrate drinking water standard, with average concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water standard. Nitrate exceedances in the Gilroy-Hollister and Pajaro groundwater basins reflect similar severe impairment, as reported by local water agencies/districts for those basins.

81. In the Pajaro River watershed, the highest recent nitrate concentration (over 650 mg/L nitrate, more than 14 times the drinking water standard) occurred in shallow wells in the eastern San Juan subbasin under intense agricultural production. High values of nitrate concentration in groundwater (greater than 500 mg/L nitrate) have also been reported in the Llagas subbasin and the lower Pajaro coastal aquifer.

82. The costs of groundwater pollution and impacts to beneficial uses caused by irrigated agriculture are transferred to the public. Public drinking water systems expend millions of dollars in treatment and replacement costs and private well owners must invest in expensive treatment options or find new sources. Rural communities, those least able to buy alternative water sources, have few options to replace the contaminated water in their homes. This Order addresses groundwater pollution to ensure protection of beneficial uses and public health.

Impacts to Groundwater – Human Health

83. Excessive concentrations of nitrate-nitrogen or nitrite-nitrogen in drinking water are hazardous to human health, especially for infants and pregnant women. The United States Environmental Protection Agency (USEPA) established a nitrate drinking water standard of 45 mg/L nitrate as nitrate (10 mg/L nitrate as nitrogen). While

acute health effects from excessive nitrate levels in drinking water are primarily limited to infants (methemoglobinemia or "blue baby syndrome"), research evidence suggests there may be adverse health effects (i.e., increased risk of non-Hodgkin's, diabetes, Parkinson's disease, alzheimers, endrocrine disruption, cancer of the organs) among adults as a result of long-term consumption exposure to nitrate.

84. Nitrogen compounds are known to cause cancer. University of Iowa research found that up to 20 percent of ingested nitrate is transformed in the body to nitrite, which can then undergo transformation in the stomach, colon, and bladder to form N-nitroso compounds that are known to cause cancer in a variety of organs in more than 40 animal species, including primates.

85. In many cases, whole communities that rely on groundwater for drinking water are threatened due to nitrate pollution, including the community of San Jerardo and other rural communities in the Salinas Valley. Local agencies and consumers have reported impacts to human health resulting from nitrate contaminated groundwater likely due to agricultural land uses, and spent significant financial resources to ensure proper drinking water treatment and reliable sources of safe drinking water for the long-term.

86. Current strategies for addressing nitrate in groundwater to achieve levels protective of human health typically include avoidance (abandoning impacted wells or re-drilling to a deeper zone), groundwater treatment to remove nitrate (i.e., dilution using blending, ion exchange, reverse osmosis, biological denitrification, and distillation), or developing additional water supplies (i.e., percolation ponds, surface water pipelines, reservoirs) to dilute nitrate-impacted sources.

87. The cost to treat and cleanup existing nitrate contamination to achieve levels that are protective of human health are very expensive to water users (e.g., farmers, municipalities, domestic well users). Research indicates that the cost to remove nitrate from groundwater can range from hundreds of thousands to millions of dollars annually for individual municipal or domestic wells. Wellhead treatment on a region wide scale would likely cost billions of dollars. Similarly, the cost to actively cleanup nitrate in groundwater on a region wide scale would also cost billions of dollars, and would be logistically difficult. If the nitrate loading due to agricultural activities is not significantly reduced, these costs are likely to increase significantly.

88. Many public water supply systems are required to provide well-head treatment or blending of drinking water sources, at significant cost, to treat nitrate before delivery to the drinking water consumer due to elevated concentrations of nitrate in groundwater. The community of San Jerardo (rural housing cooperative of primarily low-income farmworker families with approximately 250 residents) initially installed well-head treatment to treat contaminated groundwater with nitrate and other chemicals at significant cost and incurs on-going monthly treatment costs of approximately $17,000. Monterey County public health officials determined that the

community of San Jerardo requires a new drinking water well to ensure safe drinking water quality protective of public health at an approximate cost of more than $4 Million. The City of Morro Bay uses drinking water supplies from Morro and Chorro groundwater basins. Study results indicate that agricultural activities in these areas, predominantly over-application of fertilizer, have impacted drinking water supplies resulting in nitrate concentrations more than 4 times the drinking water standard. The City of Morro Bay must blend or provide well-head treatment to keep nitrate concentrations at levels safe for drinking water at significant cost. The City of Santa Maria public supply wells are also impacted by nitrate (in some areas nearly twice the drinking water standard) and must also blend sources to provide safe drinking water.

Impacts to Groundwater – Nitrate and Salts

89. Groundwater pollution due to salts is also one of the most significant and critical problems in the Central Coast Region. Agricultural activities are a significant cause of salt pollution, primarily due to the following:
    a. Seawater intrusion within the coastal basins (e.g., Salinas and Pajaro groundwater basins) caused by excessive agricultural pumping.
    b. Agricultural pumping/recycling of groundwater that concentrates salts in the aquifers.
    c. Agricultural leaching of salts from the root zone.
    d. The importation of salts into the basin from agricultural soil amendments and domestic/municipal wastewater discharges.

90. Agricultural pumping of groundwater contributes to saltwater intrusion into the Salinas and Pajaro groundwater basins, which is causing increasing portions of the groundwater basins to be unusable for agriculture and municipal supply.

91. Agricultural activities contribute significant loading of nitrates into groundwater from the following sources:

    a. Intensive fertilizer applications on permeable soils.
    b. High-nitrate tailwater discharging to creek recharge areas.
    c. Liquid fertilizer hookups on well pump discharge lines lacking backflow prevention devices.
    d. Groundwater wells that are screened through multiple aquifers, thereby acting as conduits for pollution transport into deeper groundwater.
    e. Spills and/or uncontrolled wash water or runoff from fertilizer handling and storage operations.
    f. Infiltration from leaky holding ponds.

92. Agricultural discharges contribute to pollution of groundwater basins most vulnerable to waste migration including major portions of the Santa Maria, Salinas, and Gilroy-Hollister groundwater basins. However, any groundwater basin, including those that

are confined (pressured), are susceptible to downward waste migration through improperly constructed, operated (e.g., fertigation or chemigation without backflow prevention), or abandoned wells. Additionally, land with permeable soils and shallow groundwater are susceptible to downward waste migration. Such areas of groundwater vulnerability often overlap with important recharge areas that serve to replenish drinking water supplies.

93. Agricultural discharges of fertilizer are the main source of nitrate pollution to shallow groundwater based on nitrate loading studies conducted in the Llagas subbasin and the lower Salinas groundwater basin. In 2007, the California Department of Food and Agriculture (CDFA) reported that approximately 56 million pounds of nitrogen was purchased as fertilizer in Monterey County. A 1990 Monterey County study of nitrate sources leaching to soil and potentially groundwater in Santa Cruz and Monterey Counties indicated that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in these areas.

Impacts to Aquatic Habitat

94. California has lost an estimated 91 percent of its historic wetland acreage, the highest loss rate of any state. Similarly, California has lost between 85 and 98 percent of its historic riparian areas. Owners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops.

95. The 2004 Conditional Waiver required protection of beneficial uses including aquatic and wildlife habitat. This Order continues that requirement and ensures the protection of aquatic life beneficial uses and addresses water quality degradation that has occurred, in part, as a result of encroachment by agricultural land uses on riparian and wetland areas.

96. Riparian and wetland areas play an important role in protecting several of the beneficial uses designated in the Basin Plan. Agricultural activities have degraded, and threaten to degrade, these beneficial uses related to aquatic habitat, which include, but are not limited to:
    a. Ground Water Recharge;
    b. Fresh Water Replenishment;
    c. Warm Fresh Water Habitat;
    d. Cold Fresh Water Habitat;
    e. Inland Saline Water Habitat;
    f. Estuarine Habitat;
    g. Marine Habitat;
    h. Wildlife Habitat;
    i. Preservation of Biological Habitats of Special Significance;
    j. Rare, Threatened or Endangered Species;
    k. Migration of Aquatic Organisms;
    l. Spawning, Reproduction and/or Early Development;

m. Areas of Special Biological Significance;

97. Riparian and wetland areas play an important role in achieving several water quality objectives established to protect specific beneficial uses. These include, but are not limited to those water quality objectives related to natural receiving water temperature, dissolved oxygen, suspended sediment load, settleable material concentrations, chemical constituents, and turbidity. In particular, seasonal and daily water temperatures are strongly influenced by the amount of solar radiation reaching the stream surface, which is influenced by riparian vegetation. Removal of vegetative canopy along surface waters threatens maintenance of temperature water quality objectives, which in turn negatively affects dissolved oxygen related water quality objectives, which in turn negatively affects the food web.

98. Riparian and wetland areas function to retain and recycle nutrients, thereby reducing nutrient loading directly to surface water or groundwater. Riparian and wetland areas trap and filter sediment and other wastes contained in agricultural runoff, and reduce turbidity. Riparian and wetland areas temper physical hydrologic functions, protecting aquatic habitat by dissipating stream energy and temporarily allowing the storage of floodwaters, and by maintaining surface water flow during dry periods. Riparian and wetland areas regulate water temperature and dissolved oxygen, which must be maintained within healthy ranges to protect aquatic life. In the absence of human alteration, riparian areas stabilize banks and supply woody debris, having a positive influence on channel complexity and in-stream habitat features for fish and other aquatic organisms.

99. Riparian areas are critical to the quality of in-stream habitat. Riparian vegetation provides woody debris, shade, food, nutrients and habitat important for fish, amphibians and aquatic insects. Riparian areas help to sustain broadly based food webs that help support a diverse assemblage of wildlife. More than 225 species of birds, mammals, reptiles, and amphibians depend on California's riparian habitats.

100. Up to 43 percent of the federally threatened and endangered species rely directly or indirectly on wetlands for their survival. Of all the states, California has the greatest number of at-risk animal species (15) and, by far, the greatest number of at-risk plant species (104) occurring within isolated wetlands.

101. The California Wetlands Conservation Policy, also known as "the No Net Loss Policy," adopted by Governor Wilson in 1993, established the State's intent to develop and adopt a policy framework and strategy to protect California's unique wetland ecosystems. One of the goals of this policy is to ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.

102. The Basin Plan contains requirements to protect aquatic habitat, includes, but is not limited to, Chapter 5, Page V-13, V.G. Erosion and Sedimentation :A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible as measured along the ground surface to the highest anticipated water line.

103. Real and/or perceived incompatible demands between food safety and environmental protection are a major issue in the Central Coast Region. Dischargers have removed vegetated management practices (in some cases, after receiving substantial public funds to install the vegetated management practices) and have removed riparian vegetation, both of which increase waste loading to waters of the State and impair beneficial uses.

104. According to a spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches to prevent contamination from pathogens such as the 0157:H7 bacteria. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management practices removed (RCDMC, 2007). According to a follow-up spring 2009 survey by the Resource Conservation District of Monterey County, growers are being told by their auditors and/or buyers that wetland or riparian plants are a risk to food safety (RCDMC, 2009).

105. Riparian vegetation and vegetated buffer zones are critically important to prevent the transport of sediment and bacteria, including the downstream transport of 0157:H7 bacteria. Data indicated that the major sources of 0157:H7 bacteria are domestic pigs and cattle, not wildlife. In many agricultural areas of the Central Coast Region, cattle and pig operations are located upstream of irrigated agricultural fields. Therefore, the removal of riparian and wetland vegetation and their buffer zones increases the transport of pathogens such as 0157:H7 and the risk of food contamination. Also, the 2006 outbreak of 0157:H7 contamination occurred in packaged leafy greens, and the bacteria was not determined to be from wildlife. The removal of riparian and wetland vegetation and their buffer zones for food safety purposes is not warranted, is not supported by the literature, and may increase the risk of food contamination.

106. Vegetated riparian areas provide greater environmental value than unvegetated floodplains or cropped fields. Riparian forests provide as much as 40 times the water storage of a cropped field and 15 times that of grass turf. Agricultural floodplains are

approximately 80 to 150 percent more erodible than riparian forest floodplains and riparian forest floodplains serve a valuable function by trapping sediment from agricultural fields.

107. Riparian vegetation may play a role in integrated pest management by reducing the amount of chemicals and pesticides needed on agricultural lands and protecting water quality as a result. For example, cavity nesting riparian bird species prey on rodents and pest insects in agricultural fields.

108. Riparian and wetland areas are an effective tool in improving agricultural land management. Wide riparian areas act as buffers to debris that may wash onto fields during floods, thereby offsetting damage to agricultural fields and improving water quality.

109. Exotic plant species exclude native riparian and wetland vegetation by out-competing native species for habitat. Additionally, exotic plants do not support the same diversity of wildlife native to riparian forests, often use large amounts of water, and can exist as monocultural stands of grass. Grass habitat is very different from the complex habitat structure provided by a diversity of riparian trees and shrubs, and results in habitat changes that affect the aquatic based food web.

VI. AGRICULTURAL REGULATORY PROGRAM

Agricultural Regulatory Program Implementation

110. The Central Coast Water Board is maximizing regulatory effectiveness by identifying and prioritizing actions that address the most significant agricultural water quality problems in the Central Coast Region, including the discharge of waste in agricultural tailwater, nitrate in groundwater from fertilizer, surface water toxicity resulting from pesticides, surface water nutrients from fertilizer, increasing salinity, sediment discharge and degradation of aquatic habitat.

111. The Central Coast Water Board is addressing priority agricultural water quality issues, on a watershed basis in coordination with other Water Board programs and efforts, focused in the most intensive agricultural areas of the region including the Salinas, Pajaro, and Santa Maria watersheds. In addition, Central Coast Water Board staff will assess and track progress towards specific measures of water quality improvement, and adapt to the feedback the tracking provides.

112. The Central Coast Water Board will evaluate compliance of individual Dischargers with the terms and conditions of this Order based on enrollment information, risk of water quality impairment, content of technical reports (including Farm Plan), prioritized inspections, and water quality monitoring data. In addition to the determination of noncompliance and water quality impairment, the Central Coast

Water Board will enforce the conditions of this Order in a manner similar to enforcement of WDRs and consistent with the State Water Board's Enforcement Policy, focusing on the highest priority water quality issues and most severely impaired waters.

113. The Central Coast Water Board will consider the history of compliance and violations, and progress made toward compliance and water quality improvement demonstrated by individual Dischargers when determining potential enforcement actions. In some cases, the Central Coast Water Board may terminate coverage under this Order and require the Discharger to submit a ROWD and comply with the Water Code pursuant to individual WDRs.

114. The Central Coast Water Board considers certain types of discharges to be "low risk" discharges, including those where Dischargers effectively implement certain management practices that have been demonstrated to result in a significantly lower risk of causing or contributing to degradation of water quality or impairment of beneficial uses. "Low Risk" discharges include vineyard operations certified by the Central Coast Vineyard Team as Sustainable in Practice (SIP) and operations where the Discharger demonstrates effective implementation of the following practices:

    a. Eliminates all tailwater;
    b. Does not farm adjacent to or in close proximity (within 1000 feet) to an impaired surface waterbody identified on the Impaired Waters List;
    c. Uses integrated pest management techniques and does not use pesticides identified in Attachment A (or otherwise identified in pesticide use regulation) as having a high potential to degrade/pollute surface water;
    d. Implements a nutrient management plan certified by a XXX *{Note: Appropriate professional certification, such as Certified Crop Advisor (CCA) or other certification with similar expertise and experience}* to be protective of water quality (e.g. will not contribute to an exceedance of water quality standards); and
    e. Implements stormwater control measures to minimize erosion and sediment deposition using best practicable treatment or control.

    The Central Coast Water Board considers these "low-risk discharges" to be lowest priority for any regulatory action, unless information is available to demonstrate otherwise. This Order specifies that demonstrated "low-risk discharges" will not be subject to individual water quality monitoring and reporting requirements included in this Order, unless otherwise specified. The Executive Officer will determine whether a Discharger fits within this "low risk" category based on the Discharger's demonstration that it is CCVT SIP certified or effectively implements the specified practices.

<u>Management Practice Implementation</u>

115. Commercial agriculture is an intensive land use. Relatively sophisticated agronomic and engineering approaches are available and necessary to minimize the discharge of waste from irrigated lands, including sediment, nutrients and pesticides that impact water quality and beneficial uses of waters of the State. Traditionally, conservation practices available to Dischargers were developed for irrigation efficiency or for erosion control, and not necessarily for water quality protection. To achieve water quality protection and improvement, Dischargers must take responsibility for selecting and effectively implementing management strategies to resolve priority water quality problems associated with the specific operation and watershed, utilize proper management practice design and maintenance, and implement effectiveness monitoring and adaptive management.

116. Dischargers must effectively implement a broad array of management measures to achieve water quality improvement, including practices and projects at the scale of a single farm, or cooperatively among multiple farms in a watershed or sub watershed.

117. The Farm Plan is an effective tool to identify the management practices that will be implemented to protect and improve water quality and verify compliance with this Order. Elements of the Farm Plan include irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for implementation of practices and an evaluation of progress towards water quality improvement. The development and implementation of Farm Plans was a requirement of the 2004 Order. This Order extends and builds upon that requirement by requiring the submittal of the Farm Plan, upon notice by the Executive Officer, to verify the implementation of management practices focused on priority water quality issues, and by requiring individual monitoring to verify the effective implementation of management practices.

118. Individual on-farm water quality monitoring is critical to adaptively manage and effectively implement practices to protect water quality. The data and reporting will inform the Discharger, the Water Board, and the public regarding compliance with this Order, and increases the potential success in adapting management practices to address priority water quality issues. Dischargers participating in on-farm water quality monitoring have reported, in some cases, significant reduction or elimination of their discharge of waste through effective and adaptive management practice implementation.

119. Agricultural discharges, especially surface irrigation runoff, have the potential to transport sediments and associated waste constituents that exceed water quality standards. Eliminating irrigation runoff is an effective way to minimize and/or eliminate agricultural discharges of waste to waters of the State.

120. Agricultural water quality research identifies the importance of minimizing the amount of water runoff coming from farms. Irrigation runoff occurs when the

application rate of the irrigation system exceeds the infiltration rate of the soil due to numerous factors, including poor irrigation efficiency. The percent of applied water lost to runoff may start off low, and increase towards the end of longer irrigations, or with frequent irrigation where soil is saturated. Fields with soils susceptible to low infiltration rates may lose 5 percent to 30 percent or more of their applied water to runoff.

121. Applying fertilizer, soil amendments, or agricultural products directly through an irrigation system (fertigation) increases nitrate levels in irrigation water. Runoff from fertigations is likely to be extremely high in nitrate. Agricultural research conducted in the Pajaro Valley and Salinas Valley watersheds has identified nitrate values in agricultural tailwater and drainage ditches exceeding 100 mg/L nitrate in some cases (more than ten times the drinking water standard, and likely more than 100 times the level necessary to protect aquatic life).

122. Agricultural studies document the common over-application of fertilizers, and fertilizer and animal manure are the most dominant and widespread nitrate sources to groundwater. Effective nutrient management practices to reduce the concentration of nutrients in irrigation runoff, deep percolation, and stormwater, include but are not limited to, irrigation efficiency to reduce runoff and deep percolation, nutrient budgeting to optimize fertilizer application and eliminate excessive nutrient applications, and techniques to trap nutrients between crop growing seasons and during intense periods of rainfall.

123. Agricultural studies and practices demonstrate that minimizing the production of polluted tailwater through irrigation efficiency and nutrient management practices and keeping runoff from leaving the farm is cost effective. Improving irrigation water application according to real time soil moisture data has resulted in some of the lowest concentrations of nutrients in percolating waters, confirming that irrigation efficiency is a key factor in reducing leaching of nutrients.

124. Agricultural land uses can disrupt the natural vegetation-soil cycles and biota diversity, keeping the soil surface unprotected and vulnerable to erosive forces (wind and rain), which increases the amount of sediments dispersed and transported from agricultural lands into surface water.

125. Agricultural mechanization and tillage of soil and land for bed preparation, crop maintenance and pest control, can destroy the soil structure and degrade the land, which increases the amount of sediment and associated waste constituents discharged into surface water.

126. Stormwater runoff from irrigated lands often results in significant erosion and the discharge of sediment, nutrients, and pesticides. Effective erosion control and sediment control management practices include but are not limited to cover crops, filter strips, and furrow alignment to reduce runoff quantity and velocity, hold fine

particles in place, and increase filtration to minimize the impacts to water quality. Crops grown using impervious plastic can be particularly problematic as they often result in significantly increased irrigation runoff volumes and velocities in agricultural furrows and ditches that may drain to waters of the State.

127. Runoff from greenhouses and nurseries has a high potential for water quality impairment. CCAMP data from Franklin Creek (Santa Barbara County) indicated high levels of nutrients and toxicity. Many greenhouse operations successfully reduced these levels when the Central Coast Water Board required them to eliminate surface water discharges.

128. Irrigation runoff from large greenhouses and nurseries has been documented to be as much as 4,000,000 gallons per month. Greenhouse operations often leach crops to prevent salts build up in the root zone. Excessive leaching leads to greater runoff volumes and transport of waste.

129. Fertilizer usage in greenhouses and nurseries is intensive. A study conducted by University of California, Davis found that at least 60 percent of California greenhouses have more than 450 pounds of nitrogen per acre in the root zone at any given time. In many cases, more than half of the fertilizer nitrogen applied to ornamental crops is lost to leaching due, in part, to over application of fertilizers and poor irrigation efficiency, and is a significant source of surface water and groundwater pollution.

130. Pesticide use for ornamental plants grown in greenhouses and nurseries is also intensive. According to pesticide use reports submitted to DPR, the greatest pesticide use at nurseries is with outdoor container nurseries and field-grown plants. Heavy pesticide use, coupled with an intensive irrigation regime used by many nurseries may result in a discharge of waste and poses significant threat of pollution to surface water and groundwater from pesticides.

131. Dischargers can significantly reduce the potential impact from agricultural discharges by the effective implementation of management practices identified in Farm Plans focused on priority water quality issues related to the specific operation and watershed.

132. Education is an important component of an irrigated lands program that leads to the implementation of new effective management practices that protect and enhance water quality.

VII. PUBLIC INPUT AND STAKEHOLDER PROCESS

133. The Central Coast Water Board notified interested persons that the Central Coast Water Board will consider the adoption of this Order, which conditionally waives

individual WDRs and establishes conditions for the control of discharges of waste from irrigated lands to waters of the State, and provided multiple opportunities for a public input.

134. In December 2008, the Central Coast Water Board invited members of the public to participate in development of this Order and provide recommendations to Central Coast Water Board staff. In particular, the Central Water Board requested the assistance of an Agricultural Advisory Panel in developing appropriate milestones, timetables, and verification monitoring programs to resolve water quality problems and achieve compliance with the Basin Plan. The Agricultural Advisory Panel met from December 2008 to September 2009; however, the Panel disbanded and did not submit specific recommendations to the Water Board. Additionally, in early 2009, the Central Coast Water Board notified all water purveyors, water districts and municipalities that staff was developing recommendations for this Order.

135. In December 2009,the Central Coast Water Board encouraged any interested person who wanted to present alternative recommendations to this Order to provide those recommendations in writing by April 1, 2010.

136. On February 1, 2010, the Central Coast Water Board publicly released a preliminary report and preliminary draft order for the regulation of discharges from irrigated lands.

137. <Reserved for Public Workshop Description>

138. <Reserved for Public Comment Period Description>

139. <Reserved for Public Hearing Description>

VIII. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

140. For purposes of adoption of this Order, the Central Coast Water Board is the lead agency pursuant to the CEQA (Public Resources Code Sections 21100 et seq.).

141. <Reserved for CEQA description. This section will be completed in compliance with CEQA requirements.>

IT IS HEREBY ORDERED THAT:

1. Pursuant to Water Code Sections 13263, 13267, and 13269, each Discharger, as defined in Attachment A, must comply with the terms and conditions contained in Attachment B in order to meet the provisions contained in Water Code Division 7 and regulations and plans and policies adopted thereunder.

2. This Order shall not create a vested right to discharge, and all discharges of waste are a privilege, not a right, as provided for in Water Code Section 13263(g).

3. Dischargers may not discharge any waste not specifically regulated by this Order except in compliance with the Water Code.

4. The Discharger must comply with MRP Order No. R3-2010-00XX and any revisions thereto by the Executive Officer.

5. Pursuant to Water Code Section 13269, the Central Coast Water Board waives the requirement for Dischargers to submit a ROWD pursuant to Water Code Section 13260 and to obtain WDRs pursuant to Water Code Section 13263(a) for discharges of waste from irrigated lands if the Discharger complies with this Order, including Attachments, and MRP Order No. R3-2010-00XX.

6. The Executive Officer may propose individual WDRs to the Water Board for any Discharger at any time.

7. Pursuant to Water Code Section 13269, this action waiving the issuance of WDRs for certain specific types of discharges: 1) is conditional; 2) may be terminated by the Central Coast Water Board at any time; 3) may be superceded if the State Water Board or Central Coast Water Board adopts specific WDRs or general WDRs for this type of discharge; 4) does not permit any illegal activity; 5) does not preclude the need for permits which may be required by other local or governmental agencies; and 6) does not preclude the Central Coast Water Board from administering enforcement remedies (including civil liability) pursuant to the Water Code.

8. The Central Coast Water Board or the Executive Officer may, at any time, terminate applicability of this Order with respect to an individual Discharger upon written notice to the Discharger.

9. This Order becomes effective on **10 July 2010** and expires on **9 July 2015** unless rescinded or renewed by the Central Coast Water Board.

I, ROGER W. BRIGGS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order and Attachments adopted by the California Regional Water Quality Control Board, Central Coast Region, on 10 July 2010.

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ROGER W. BRIGGS, Executive Officer

ATTACHMENT A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

ORDER NO. R3-2010-00XX

APPLICABLE WATER QUALITY CONTROL PLANS AND DEFINITIONS FOR CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

Order No. R3-2010-00XX requires Dischargers to comply with applicable state plans and policies and applicable state and federal water quality standards and to prevent nuisance. The water quality standards are set forth in state and federal plans, policies, and regulations. The California Regional Water Quality Control Board (Central Coast Water Board), Central Coast Region's Water Quality Control Plan contains specific water quality objectives, beneficial uses, and implementation plans that are applicable to discharges of waste and/or waterbodies that receive discharges of waste from irrigated lands. The State Water Resources Control Board (State Water Board) has adopted plans and policies that may be applicable to discharges of waste and/or surface waterbodies or groundwater that receive discharges of waste from irrigated lands. The United States Environmental Protection Agency (USEPA) has adopted the *National Toxics Rule* and the *California Toxics Rule*, which constitute water quality criteria that apply to waters of the United States.

The specific waste constituents to be monitored and the applicable water quality standards that protect identified beneficial uses for the receiving water are set forth in the Monitoring and Reporting Program Order No. R3-2010-00XX.

This Attachment A lists relevant plans, policies, regulations, and definitions of terms used in Order No. R3-2010-00XX.

WATER QUALITY CONTROL PLAN

The *Water Quality Control Plan for the Central Coast Region* (Basin Plan) was adopted by the Central Coast Water Board in 1975 and is periodically revised. The Basin Plan is available by contacting the Central Coast Water Board at (805) 549-3147 or by visiting the Central Coast Water Board's website at:

http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/

OTHER RELEVANT PLANS, POLICIES, AND REGULATIONS

State Water Resources Control Board, Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California,* October 1968.

State Water Resources Control Board, *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California*, June 1972.

State Water Resources Control Board, Resolution No. 74-43, *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*, May 1974.

State Water Resources Control Board, Resolution No. 88-63, *Sources of Drinking Water Policy*, May 1988.

State Water Resources Control Board, *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program,* May 2004.

State Water Resources Control Board, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)*, February 2005

State Water Resources Control Board, *Water Quality Control Plan for Ocean Waters of California (CA Ocean Plan),* April 2005.

State Water Resources Control Board, *Water Quality Enforcement Policy,* February 19, 2002.

United States Environmental Protection Agency, *National Toxics Rule*, 40 CFR 131.36, 57 FR 60848, December 1992.

United States Environmental Protection Agency, *California Toxics Rule*, 40 CFR 131.38, 65 FR 31682, May 2000.

DEFINITIONS

The following definitions apply to Order No. R3-2010-00XX, and Monitoring and Reporting Program as related to discharges of waste from irrigated lands. The terms are arranged in alphabetical order. All other terms not explicitly defined for the purposes of this Order and Monitoring and Reporting Program shall have the same definitions as prescribed by California Water Code Division 7 or are explained within the Order or the Monitoring and Reporting Program documents.

1. Anti-degradation. The State Water Board established a policy to maintain high quality waters of the State - Resolution 68-16 "*Statement of Policy with Respect to Maintaining High Quality Waters in California*." Resolution 68-16 requires existing high quality water to be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of water, and will not result in water quality less than that prescribed in the policies. Regional Water Boards are required to ensure compliance with Resolution 68-16. The Central Coast Water Board must require discharges to be subject to *best practicable treatment or control* of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with maximum benefit to the people of the State. Resolution 68-16 has been approved by the USEPA to be consistent with the federal anti-degradation policy.

2. Aquatic Habitat. The physical, chemical and biological components and functions of riparian areas and wetlands and their buffer zones.

3. Basin Plan. The Basin Plan is the Central Coast's Region Water Quality Control Plan. The Basin Plan describes how the quality of the surface and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan includes beneficial uses, water quality objectives, and a program of implementation.

4. Beneficial Uses. The Basin Plan establishes the beneficial uses to be protected in the Central Coast Region. Beneficial uses for surface water and groundwater are divided into twenty-four standard categories identified below. The following beneficial uses apply to all waterbodies:

   - agricultural supply (AGR)
   - aquaculture (AQUA)
   - areas of special biological significance (ASBS)
   - cold freshwater habitat (COLD)
   - commercial and sportfishing (COMM)
   - estuarine habitat (EST)
   - freshwater replenishment (FRESH)
   - groundwater recharge (GWR)
   - hydropower generation (POW)
   - industrial process supply (PRO)
   - industrial service supply (IND)
   - inland saline water habitat (SAL)
   - marine habitat (MAR)
   - municipal and domestic supply (MUN)
   - migration of aquatic organisms (MIGR)
   - navigation (NAV)
   - non-contact recreation (REC2)
   - preservation of biological habitats of special significance (BIOL)
   - rare, threatened or endangered species (RARE)
   - shellfish harvesting (SHELL
   - spawning, reproduction, and development (SPWN)
   - warm freshwater habitat (WARM)
   - water contact recreation (REC1)
   - wildlife habitat (WILD)

5. Concentration. The relative amount of a substance mixed with another substance. An example is 5 parts per million (ppm) of nitrogen in water or 5 mg/L.

6. Discharge. A release of a waste to waters of the State, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides and herbicides.

7. Discharger. The owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater.

8. Discharges of Waste from Irrigated Lands. Surface water and groundwater discharges, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills containing waste.

9. Ephemeral Stream. A channel that holds water during and immediately after rain events.

10. Erosion. The wearing away of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

11. Erosion and Sediment Control Practices. Practices used to prevent and reduce the amount of soil and sediment entering surface water in order to protect or improve water quality.

12. Exceedance. A reading using a field instrument or a detection by a California State-certified analytical laboratory where the detected result is above an applicable water quality standard for the parameter or constituent. For toxicity tests, an exceedance is a result that is statistically lower than the control sample test result.

13. Farm Water Quality Management Plan (Farm Plan). The Farm Plan is a document that contains, at a minimum, identification of management practices that are being or will be implemented to protect and improve water quality by addressing irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for the effective implementation of management practices and verification monitoring to determine compliance with the requirements of this Order

(schedules, milestones, effluent limits, etc.). Consistent with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands adopted by the Board in July 2004 (Order No. R3-2004-0117), this Order requires Dischargers to develop and implement a Farm Plan focused on the priority water quality issues associated with a specific operation and the priority water quality issues associated with a specific watershed or subwatershed.

14. Groundwater. The supply of water found beneath the earth's surface, usually in aquifers, which supply wells and springs.

15. Groundwater Protection Practices. Management practices designed to reduce or eliminate transport of nitrogen, pesticides, and other waste constituents into groundwater.

16. Integrated Pest Management Program (IPM). A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as encouraging biological control, use of resistant varieties, or adoption of alternative cultivating, pruning, or fertilizing practices or modification of habitat to make it incompatible with pest development. Pesticides are used only when careful field monitoring indicates they are needed according to pre-established guidelines or treatment thresholds.

17. Intermittent Stream. A stream that holds water during wet portions of the year.

18. Irrigated Lands. For the purpose of this Order, irrigated lands include lands where water is applied for the purpose of producing commercial crops and include, but are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors, that do not have point-source type discharges, and are not currently operating under individual Waste Discharge Requirements (WDRs). Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Order.

19. Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

20. Irrigation Management Practices. Management practices designed to improve irrigation efficiency and reduce the amount of irrigation return flow or tailwater, and associated degradation or pollution of surface and groundwater caused by discharges of waste associated with irrigated lands.

21. Irrigation Runoff or Return Flow. Surface and subsurface water that leaves the field following application of irrigation water. See also, Tailwater.

22. Irrigation System Distribution Uniformity. Irrigation System Distribution Uniformity is a measure of how uniformly irrigation water is applied to the cropping area, expressed as a percentage. A nonuniform distribution can deprive portions of the crop of sufficient irrigation water, and can result in the excessive irrigation leading to water-logging, plant injury, salinization, irrigation runoff and transport of chemicals to surface water and groundwater.

23. Load. The concentration or mass of a substance discharged over a given amount of time, for example 10 mg/L/day or 5 Kg/day, respectively.

24. Low-Risk Discharge. Low-Risk Discharges are those discharges where Dischargers demonstrate low-risk by submitting information in their Notice of Intent for approval by the Executive Officer that they are 1) a vineyard operation certified by the Central Coast Vineyard Team (CCVT) as Sustainable in Practice (SIP); or 2) an operation that meets all of the following criteria:

    a. Eliminates all tailwater;
    b. Does not farm adjacent to or in close proximity (within 1000 feet) to an impaired surface waterbody identified on the Impaired Waters List;
    c. Demonstrates effective use of integrated pest management techniques and does not use pesticides identified in Attachment A (or elsewhere) as having a high potential to degrade/pollute surface water;
    d. Demonstrates effective use of a nutrient management plan certified by a XXX *{Note: Appropriate professional certification, such as Certified Crop Advisor (CCA) or other certification with similar expertise and experience}* to be protective of water quality (e.g. will not contribute to an exceedance of water quality standards); and
    e. Demonstrates effective use of stormwater control measures to minimize erosion and sediment deposition using best practicable treatment or control.

25. Monitoring. Sampling and analysis of receiving water quality conditions, discharge water quality, aquatic habitat conditions, effectiveness of management practices, and other factors that may affect water quality conditions to determine compliance with this Order or other regulatory requirements. Monitoring includes but is not limited to: surface water or groundwater sampling, on-farm water quality monitoring undertaken in connection with agricultural activities, monitoring to identify short and long-term trends in in-stream water quality or discharges from sites, inspections of operations, management practice implementation and effectiveness monitoring, maintenance of on-site records and management practice reporting.

26. Nitrate Hazard Index. In 1995, the University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index). The purpose of the Nitrate Hazard Index is to identify agricultural fields with the highest vulnerability for nitrate contamination to groundwater, based on soil, crop, and irrigation practices. The hazard index number

can range from 1 through 80 with the hazard increasing with increasing hazard index number. The WRC states that an index number greater than 20 indicates greater risk for nitrate contamination to groundwater and should receive careful attention. http://www.lib.berkeley.edu/WRCA/WRC/wqp_hazard.html

27. Non-point Source Pollution (NPS). Diffuse pollution sources that are generally not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common non-point sources are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

28. Non-Point Source Management Measures. To combat NPS pollution, the State Water Board NPS Program adopted management measures as goals for the reduction of polluted runoff generated from five major categories, including agriculture. Management measures address the following components for agriculture: Erosion and sediment control; facility wastewater and runoff from confined animal facilities; nutrient management; pesticide management; irrigation water management; grazing management, and groundwater protection.

29. Non-Point Source Management Practices. Methods or practices selected by entities managing land and water to achieve the most effective, practical means of preventing or reducing pollution from diffuse sources, such as wastes carried off the landscape via urban runoff, excessive hill, slope or streambed and bank erosion, etc. Management Practices include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Management Practices can be applied before, during, and after pollution-causing activities to prevent, reduce, or eliminate the introduction of wastes into receiving waters.

30. Nutrient. Any substance assimilated by living things that promotes growth.

31. Nutrient Management Practices. Management practices designed to reduce the nutrient loss from agricultural lands, which occur through edge-of-field runoff or leaching from the root zone.

32. Operational Spill. Irrigation water that is diverted from a source such as an irrigation well or river, but is discharged without being delivered to or used on an individual field.

33. Perennial Stream. A stream that holds water throughout the year.

34. Pesticides with a High Potential to Degrade/Pollute Surface Water. The following pesticides have an increased potential to degrade/pollute surface water (University of California, Agriculture and Natural Resources (UC-ANR) Publication 8161):

(S)-CYPERMETHRIN	DIFLUBENZURON	METHYL PARATHION
2,4-D	DIMETHOATE	METHYL PARATHION, OTHER RELATED

2,4-D, 2-ETHYLHEXYL ESTER	DIQUAT DIBROMIDE	METRIBUZIN
2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES)	DISULFOTON	MSMA
2,4-D, DIMETHYLAMINE SALT	DITHIOPYR	MYCLOBUTANIL
2,4-D, ISOOCTYL ESTER	DIURON	NALED
2,4-D, TRIISOPROPANOLAMINE SALT	ENDOSULFAN	NAPROPAMIDE
ABAMECTIN	ENDOTHALL, MONO [N,N-DIMETHYL ALKYLAMINE] SALT	NORFLURAZON
ACEPHATE	EPTC	ORYZALIN
ATRAZINE	ESFENVALERATE	OXADIAZON
AZINPHOS-METHYL	ETHOFUMESATE	OXAMYL
AZOXYSTROBIN	FENARIMOL	OXYDEMETON-METHYL
BENEFIN	FENBUTATIN-OXIDE	OXYFLUORFEN
BENSULIDE	FENPROPATHRIN	PARAQUAT DICHLORIDE
BENTAZON, SODIUM SALT	FIPRONIL	PARATHION
BETA-CYFLUTHRIN	FLUAZIFOP-P-BUTYL	PARATHION, OTHER RELATED
BIFENAZATE	FOSETYL-AL	PENDIMETHALIN
BIFENTHRIN	GAMMA-CYHALOTHRIN	PERMETHRIN
BROMACIL	GLUFOSINATE-AMMONIUM	PERMETHRIN, OTHER RELATED
CAPTAN	GLUTARALDEHYDE	PHORATE
CAPTAN, OTHER RELATED	GLYPHOSATE	PHOSMET
CARBARYL	GLYPHOSATE, DIAMMONIUM SALT	PRODIAMINE
CARBOFURAN	GLYPHOSATE, ISOPROPYLAMINE SALT	PROMETRYN
CARBOXIN	GLYPHOSATE, MONOAMMONIUM SALT	PROPICONAZOLE
CHLOROTHALONIL	GLYPHOSATE, POTASSIUM SALT	PROPYZAMIDE
CHLORPYRIFOS	HALOSULFURON-METHYL	PYRAZON
CLETHODIM	HEXAZINONE	PYRIDABEN
CLOFENTEZINE	HEXYTHIAZOX	RIMSULFURON
CLOPYRALID, MONOETHANOLAMINE SALT	IMAZAPYR, ISOPROPYLAMINE SALT	SETHOXYDIM
CLOPYRALID,TRIETHYLAMINE SALT	IMIDACLOPRID	SIMAZINE
COPPER SULFATE (BASIC)	IPRODIONE	S-METOLACHLOR
COPPER SULFATE (PENTAHYDRATE)	ISOXABEN	SPINOSAD
CYCLOATE	LAMBDA-CYHALOTHRIN	TEBUFENOZIDE

CYFLUTHRIN	LINURON	THIABENDAZOLE
CYMOXANIL	MALATHION	THIOPHANATE-METHYL
CYPERMETHRIN	MANCOZEB	THIRAM
CYPRODINIL	MANEB	TRIADIMEFON
DIAZINON	MCPA, DIMETHYLAMINE SALT	TRICLOPYR, BUTOXYETHYL ESTER
DICAMBA	MCPA, ISOOCTYL ESTER	TRICLOPYR, TRIETHYLAMINE SALT
DICAMBA, DIMETHYLAMINE SALT	MECOPROP-P	TRIFLUMIZOLE
DICAMBA, DIMETHYLAMINE SALT, OTHER RELATED	METAM-SODIUM	TRIFLURALIN
DICLORAN	METHIDATHION	VINCLOZOLIN
DICOFOL	METHOMYL	

35. Pesticide Management Practices. Management practices designed to reduce or eliminate pesticide runoff into surface water and groundwater.

36. Point Source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which wastes are or may be discharged.

37. Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

38. Quality of the Water. The "chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use" as defined in the California Water Code Sec. 13050(g).

39. Receiving Waters. Surface waters or groundwater that receive or have the potential to receive discharges of waste from irrigated lands.

40. Requirements of Applicable Water Quality Control Plans. Water quality objectives, prohibitions, Total Maximum Daily Load (TMDL) Implementation Plans, or other requirements contained in the Basin Plan, as adopted by the Central Coast Water Board and approved according to applicable law.

41. Riparian Area. Vegetation affected by the surface water or groundwater of adjacent perennial or intermittent streams, lakes or other waterbodies. Vegetation species are distinctly different from adjacent areas or are similar to adjacent areas but exhibit

more vigorous or robust growth forms indicative of increased soil moisture (Dall et. al. 1997, p.3) Dall, D.C., Elliot, and D. Peters. 1997. *A System for Mapping Riparian Areas in the Western United States.* U.S. Fish and Wildlife Service, National Wetlands Inventory. 15 pp.

42. Riparian Buffer. A protection zone surrounding perennial or intermittent channels with riparian vegetation and riparian functions that support beneficial uses and protect water quality.

43. Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

44. Subsurface Drainage. Water generated by installing drainage systems to lower the water table below irrigated lands. The drainage can be generated by subsurface drainage systems, deep open drainage ditches or drainage wells.

45. Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions; a major transporter of non-point source wastes in rivers, streams, and lakes.

46. Sustainable Land Management. The use of land and water resources by humans, while ensuring the long-term productive potential of resources, and the maintenance of environmental functions. This definition of sustainable land management includes managing land to maintain ecological processes and biological diversity.

47. Tailwater. Runoff of irrigation water from the lower end of an irrigated field. See also, Irrigation Runoff or Return Flow.

48. Tile Drains. Subsurface drainage which removes excess water from the soil profile, usually through a network of perforated tile tubes installed 2 to 4 feet below the soil surface. This lowers the water table to the depth of the tile over the course of several days. Drain tiles allow excess water to leave the field. Once the water table has been lowered to the elevation of the tiles, no more water flows through the tiles.

49. Total Maximum Daily Load (TMDL). The condition of an impaired surface waterbody (on the Clean Water Act Sec. 303(d) list) that limits the amount of pollution that can enter the waterbody without adversely affecting its beneficial uses, usually expressed as a concentration (e.g., mg/L) or mass (e.g., kg); TMDLs are proportionally allocated among dischargers to the impaired surface waterbody.

50. Waste. "Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal" as defined in the California Water Code Sec. 13050(d). "Waste" includes

irrigation return flows and drainage water from agricultural operations containing materials not present prior to use. Waste from irrigated agriculture includes *earthen materials* (such as soil, silt, sand, clay, rock), *inorganic materials* (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and *organic materials* such as pesticides.

51. Water Quality Control. The "regulation of any activity or factor which may affect the quality of the waters of the State and includes the prevention and correction of water pollution and nuisance" as defined in the California Water Code Sec. 13050(i).

52. Water Quality Criteria. Levels of water quality required under Sec. 303(c) of the Clean Water Act that are expected to render a body of water suitable for its designated uses. Criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes. The *California Toxics Rule* adopted by USEPA in April 2000, sets numeric Water Quality Criteria for non-ocean waters of California for a number of pollutants. See also, Water Quality Objectives.

53. Water Quality Objectives. "Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area," as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of Section 303 of the Clean Water Act. Specific Water Quality Objectives relevant to this Order are identified in Tables 1 and 2.

54. Water Quality Standard. Provisions of State or Federal law that consist of the beneficial designated uses or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an anti-degradation statement. Water quality standards includes water quality objectives in the Central Coast Water Board's Basin Plan, water quality criteria in the California Toxics Rule and National Toxics Rule adopted by USEPA, and/or water quality objectives in other applicable State Water Board plans and policies. Under Sec. 303 of the Clean Water Act, each State is required to adopt water quality standards.

55. Waters of the State. "Any surface water or groundwater, including saline waters, within the boundaries of the State" as defined in the California Water Code Sec. 13050(e), including all waters within the boundaries of the State, whether private or public, in natural or artificial channels, and waters in an irrigation system.

56. Wetland. An area is a wetland if, under normal circumstances, it (1) is saturated by groundwater or inundated by shallow surface water for a duration sufficient to cause anaerobic conditions within the upper substrate; (2) exhibits hydric substrate conditions indicative of such hydrology; and (3) either lacks vegetation or the

vegetation is dominated by hydrophytes. (TAT. 2009) *Technical Memorandum no. 2: Wetland Definition*, Final, Dated June 25, 2009. Produced by the San Francisco Estuary Institute for the Technical Advisory Team for the California Wetland and Riparian Area Protection Policy, California State Water Resources Control Board, Sacramento, CA).

Tables 1A and 1B.
Summary Of Narrative And Numeric Water Quality Objectives For Agricultural Discharges To Surface And Groundwater. Acronyms in the Table are defined in a list at the end of the Table. The water quality objectives indicated by a double asterisk (**) must be met in irrigation runoff per the compliance time schedule contained in the Preliminary Draft Agricultural Order, Part H and are included as individual discharge monitoring requirements (MRP Order No. R3-2010-00XX). All other water quality objectives must be met in receiving waters and generally are included in watershed monitoring requirements (MRP Order No. R3-2010-00XX). This Order anticipates timeframes beyond the term of this Order to achieve water quality objectives in receiving water.

Table 1A. Narrative And Numeric Water Quality Objectives For Surface Water.

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
TOXICITY	
Toxicity** *(BPGO, III-4)* *Narrative Objective:* All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. *Indicators of Narrative Objective:* Chemical concentrations in excess of toxic levels for aquatic life including but not limited to the following: Chlorpyrifos 0.025 ug/L Diazinon 0.14 ug/L *(Source: Sipmann and Finlayson 2000)*	All Surface Waters
TOXICANTS	
Nutrients	
Ammonia, Total (N)** *(BPSO, Table 3.3)* >30 mg/L NH4-N	AGR
Ammonia,**	

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Un-ionized *(BPGO, III-4)* 0.025 mg/L NH3 as N	All Surface Waters
Nitrate** ***(****a. BPSO, Table 3-2* *b. BPSO, Table 3-3)* a. 10 mg/L NO3-N b. >30 mg/L NO3-N	a. MUN b. AGR
Organics	
Chemical Constituents *(BPSO, III-5 and Table 3-2)* Waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Article 4, Chapter 15, Section 64435, Tables 2 and 3 as listed in Table 3-2.	MUN
Chemical Constituents *(BPSO, III-5 and Table 3-3)* Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-4	AGR
Chemical Constituents *(BPSO, III-10, Table 3-5, Table 3-6)* Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5 or Table 3-6.	COLD, WARM, MAR
Oil and Grease *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Organic Chemicals *(BPSO, III-5 and Table 3-1)* All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.	MUN
Other Organics *(BPGO, III-3)* **Phenol** *(BPSO, III-5)* Waters shall not contain organic substances in concentrations greater than the following: Methylene Blue Activated Substances < 0.2 mg/L Phenols < 0.1 mg/L Phenol (MUN) ≤ 1.0 µg/L PCB's < 0.3 µg/L Phthalate Esters < 0.002 µg/L	All Surface Waters
Metals	
Chromium *(BOSP, III-12)* ≤ 0.01 mg/L	SHELL
Cadmium *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Chromium *(BPGO, III-11)* ≤ 0.05 mg/L	COLD, WARM
Copper *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.01 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Lead *(BPGO, III-11)* ≤ 0.03 mg/L	COLD, WARM
Mercury *(BPGO, III-11)* ≤ 0.0002 mg/L	COLD, WARM
Nickel *(BPGO, III-11)* ≤ 0.4 mg/L in hard water or ≤.0.1 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Zinc *(BPGO, III-11)* ≤ 0.2 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
CONVENTIONALS	
Biostimulatory Substances *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. *Indicators of Narrative Objective:* Indicators of biostimulation include chlorophyll-a, dissolved oxygen, phosphorous, and nitrate. Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation. *(Source: Central Coast Water Board. April 2009. Central Coast Ambient Monitoring Program Technical Paper: Interpreting Narrative Objectives for Biostimulatory Substances Using the Technical Approach for Developing California Nutrient Numeric Endpoints)*	All Surface Waters
Boron *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-	Specific Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Basins Objectives range from 0.2 – 0.5 mg/L.	
Chloride *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 150-1400 mg/L.	Specific Surface Waters
Color *(BPGO, III-3)* Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.	All Surface Waters
Conductivity *(BPSO, III-8, Table 3-3)* >3.0 mmho/cm	AGR
Dissolved Oxygen (DO) ***(****BPGO, III-2)* Mean annual DO $\geq$ 7.0 mg/L Minimum DO $\geq$ 5.0 mg/L	All Ocean Waters
Dissolved Oxygen *(BPGO, III-4)* For waters not mentioned by a specific beneficial use: DO $\geq$ 5.0 mg/L DO Median values $\geq$ 85 percent saturation	All Surface Waters
Dissolved Oxygen *(BPSO, III-10)* DO $\geq$ 7.0 mg/L	COLD, SPWN
Dissolved Oxygen *(BPSO, III-10)* DO $\geq$ 5.0 mg/L	WARM
Floating Material *(BPGO, III-3)* *Narrative Objective:*	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.	
pH** ***(****BPSO, III-10)* The pH value shall not be depressed below 7.0 nor above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.	COLD, WARM,
pH** ***(****BPSO, III-10)* The pH value shall not be depressed below 7.0 or raised above 8.5[2]. Changes in normal ambient pH levels shall not exceed 0.2 units.	MAR
pH** ***(****BPSO, III-5)* The pH value shall not be depressed below 6.5 nor above 8.3.	MUN, REC-1, REC-2, AGR
Settleable Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.	All Surface Waters
Sodium *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 20-250 mg/L.	
Sulfate *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-700 mg/L.	
Suspended Sediment *(BPGO, III-3)* *Narrative Criteria:* The suspended sediment load and suspended sediment discharge rate of	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	
Suspended Material *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters
Taste and Odor *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.	All Surface Waters
Temperature** *(BPGO, III-3)* *Narrative Criteria:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.	All Surface Waters
Temperature** *(BPGO, III-4)* *Narrative Objective:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. *a) Indicators of Narrative Objective for COLD Habitat:* **Coho** December - April 48-54 ºF 7-DAM[3] 56-58 ºF 1-DAM May – November 57-63 ºF 7-DAM 68-70 ºF 1-DAM **Steelhead** December - April 55-57 ºF 7-DAM 56-58 ºF 1-DAM	All Surface Waters a) COLD

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
May – November 56-63 ºF 7-DAM 70-73 ºF 1-DAM *(Source: Hicks 2000)* *b) Indicators of Narrative Objective for WARM Habitat:* **Stickleback** Upper optimal limit = 75 ºF (This temperature is also the low end of the upper lethal limit for steelhead) *(Source: Moyle 1976)* Note: 7-DAM refers to the rolling arithmetic average of seven consecutive daily maximum temperatures. 1-DAM refers to the highest daily maximum temperature.	b) WARM
Temperature** *(BPSO, III-10)* At no time or place shall the temperature be increased by more than 5^{o}F above natural receiving water temperature.	COLD, WARM
Total Dissolved Solids (TDS)** *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-250 mg/L.	
Turbidity** *(BPGO, III-3 and* *WDR R3-2006-0032)* Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits in receiving water: a. Five NTU, where natural turbidity is less than 25 NTU b. Twenty percent, where natural turbidity is between 25 and 50 NTU. c. Ten NTU, where natural turbidity is between 50 and 100 NTU. d. Ten percent, where natural turbidity is greater than 100 NTU.	All Surface Waters
PATHOGEN INDICATORS	
Fecal Coliform *(BOSP,III-5)* Log mean 200 MPN/100mL. Max 400 MPN/100mL.	REC-1

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Fecal Coliform *(BOSP,III-10)* Log mean 2000 MPN/100mL. Max 4000 MPN/100mL.	REC-2
E. coli *(USEPA)* Max 235 MPN/100 mL	REC-1
Total Coliform *(BOSP,III-12)* Median $\leq$ 70/100 MPN/100mL Max 230 MPN/100 mL	SHELL

Table 1B. Narrative And Numeric Water Quality Objectives For Groundwater.

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
TOXICANTS	
Chemical Constituents *(BPSO, III-14)* Groundwaters shall not contain concentrations of chemical constituents in excess of federal or state drinking water standards.	MUN
Chemical Constituents *(BPSO, III-14 and Tables 3-3 and 3-4)* Groundwaters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4.	AGR

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
Total Nitrogen *(BPSO, III-15 and Table 3-8)* Groundwater Basin Objectives for Median values range from 1-10 mg/L as N.	Specific Groundwater Basins
CONVENTIONALS	
Total Dissolved Solids (TDS) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 100-1500 mg/L TDS.	Specific Groundwater Basins
Chloride (Cl) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 20-430 mg/L Cl.	Specific Groundwater Basins
Sulfate (SO_4) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-1025 mg/L SO_4.	Specific Groundwater Basins
Boron (B) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 0.1-2.8 mg/L B.	Specific Groundwater Basins
Sodium (Na) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-730 mg/L.	Specific Groundwater Basins

Acronyms:
BP = Basin Plan or Water Quality Control Plan for the Central Coast Region
BPGO = Basin Plan General Objective
BPSO = Basin Plan Specific Objective related to a designated beneficial use
TMDL = Specific Objective related to an adopted Total Maximum Daily Load
WDR = Waste Discharge Requirements
SB = State Board established guideline

USEPA = US Environmental Protection Agency
CCAMP = Central Coast Ambient Monitoring Program
SWAMP = Surface Water Ambient Monitoring Program
MCL = Maximum Contaminant Level, California drinking water standards set forth in California Code of Regulations, Title 22.
NTU = Nephelometric Turbidity Unit
mg/L = milligram/Liter
MPN = Most Probable Number

ATTACHMENT B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

ORDER NO. R3-2010-00XX

TERMS AND CONDITIONS FOR CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

Attachment B to Order No. R3-2010-00XX contains the terms and conditions of the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (Order). This Order conditionally waives waste discharge requirements (WDRs) and reports of waste discharge (ROWDs) for individual discharges of waste from irrigated lands to waters within the Central Coast Region that comply with the conditions of this Order. Attachment A of Order No. R3-2010-00XX lists applicable plans, policies, regulations, and definitions of terms used in Order No. R3-2010-00XX. This Order establishes terms and conditions with which Dischargers must comply to obtain coverage under and to be in compliance with the Order. Order No. R3-2010-00XX defines "Discharger(s)" as the owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. Order No. R3-2010-00XX defines "discharges of waste from irrigated lands" as including surface discharges, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge of waste from irrigated lands, runoff resulting from frost control, and/or operational spills containing waste.

Dischargers must comply with the following conditions:

Part A. General Provisions

1. Dischargers must comply with all conditions of this Order, including timely submittal of all technical reports specified in Part C. Technical Reports. Violations may result in enforcement action under the California Water Code (Water Code), including Central Coast Regional Water Quality Control Board (Central Coast Water Board) orders, or termination of coverage under this Order.

2. Dischargers must comply with the Central Coast Region Water Quality Control Plan (Basin Plan) and all other applicable water quality control plans as identified in Attachment A. <CLARIFICATION OF EXISTING>

3. Dischargers must take all reasonable steps to prevent any discharge in violation of this Order.

4. Dischargers must not (a) cause, (b) have a reasonable potential to cause, or (c) contribute to an excursion above or outside the acceptable range for any Regional, State, or Federal numeric or narrative water quality standard identified in Attachment A, so as to assure the protection of all actual or designated beneficial uses of waters of the State, per the time schedule described in Part H of this Attachment B to the Order. In addition, per Resolution 68-16 (Anti-Degradation Policy), Dischargers must not discharge waste to receiving water that will result in degradation of existing high quality water. Dischargers must implement management practices to meet applicable water quality standards in receiving water, or maintain existing water quality, whichever is more stringent.

5. Dischargers must not cause or contribute to conditions of pollution or nuisance as defined in Water Code Section 13050.

6. Agricultural discharges percolated into groundwater must be of such quality at the point where they enter the ground to assure the protection of all actual or designated beneficial uses of all groundwaters.

7. Dischargers must comply with applicable Total Maximum Daily Loads (TMDLs), including any plan of implementation for the TMDL, commencing with the effective date or other date for compliance stated in the TMDL. A list of TMDLs adopted by the Central Coast Water Board is available on the Central Coast Water Board website at: http://www.waterboards.ca.gov/centralcoast/water_issues/_programs/tmdl/index.shtml.

8. Dischargers must develop and implement a Farm Water Quality Management Plan (Farm Plan). The Farm Plan must identify and focus on the water quality impacts associated with the specific operation and watershed or subwatershed, based on water quality data from Individual Discharge Monitoring and/or Watershed Monitoring. Farm Plans must identify the management measures the Discharger is implementing to achieve compliance with this Order, a schedule for implementation and verification monitoring to evaluate progress towards compliance with this Order. Specifically, the Farm Plan must identify management practices the grower is implementing to comply with this Order, including the following: addressing irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection.
<CLARIFICATION OF EXISTING>

9. Dischargers must update their Farm Plans at least annually with monitoring and site evaluation results, and specific adjustments in response to any results that indicate unacceptable progress (e.g., do not meet interim milestones identified in this Order). <NEW>

10. Dischargers must submit the Farm Plan or requested elements of the Farm Plan within 30 days of written notice by the Executive Officer. <NEW>

11. 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.

12. Dischargers must maintain in good working order and operate as efficiently as possible any facility or control system, including management practices and monitoring devices installed or used to achieve compliance with this Order. <NEW>

13. **Within 3 months** from adoption of this Order and prior to initiating discharge monitoring, Dischargers must submit a Quality Assurance Project Plan (QAPP) and Sampling and Analysis Plan (SAP) for Executive Officer approval as specified in the Monitoring and Reporting Program (MRP) Order No. R3-2010-00XX. To reduce costs for individual Dischargers, Dischargers may utilize QAPPs and SAPs prepared by a third-party and approved by the Executive Officer (e.g. Cooperative Monitoring Program, if applicable). <NEW>

14. Dischargers must conduct waste specific monitoring and reporting that includes Individual Discharge Characterization Monitoring, Individual Discharge Monitoring, Watershed (receiving water) Monitoring, and Additional Monitoring, as required by the Executive Officer (receiving water and/or discharge) per MRP Order No. R3-2010-00XX. In addition, Dischargers must submit a plan to monitor groundwater quality in agricultural areas to evaluate long term trends in groundwater quality and protection of beneficial uses, including drinking water. The specific waste constituents to be monitored are set forth in MRP Order No. R3-2010-00XX. To reduce costs for individual Dischargers, Dischargers may elect to conduct monitoring and reporting by participating in a monitoring program conducted by a third-party and approved by the Executive Officer (e.g. Cooperative Monitoring Program (CMP), if applicable). Per MRP Order No. R3-2010-00XX, Dischargers must conduct monitoring as follows: <NEW>

    a. *Individual Discharge Characterization Monitoring* – Used to characterize the type and nature of non-stormwater discharges to surface water and groundwater from individual agricultural operations (including type of discharge, flow or volume of discharge, frequency of discharge, concentration or load of wastes in discharge in comparison to water quality standards and receiving water quality). Individual Discharge Characterization Monitoring is also used to evaluate the need for one time and/or continuous Individual Discharge Monitoring.

b. *Individual Discharge Monitoring* – Used to monitor discharges of waste from individual agricultural operations and assess compliance with applicable water quality standards for the protection of water quality and associated beneficial uses.

c. *Watershed Monitoring* – Used to monitor discharges of waste in stormwater runoff from agricultural operations and associated impacts to receiving water. Watershed Monitoring is also used monitor and assess long term water quality trends in agricultural watersheds, and monitor and assess the protection of beneficial uses, including aquatic habitat.

d. *Additional Monitoring* - Used to provide more detailed monitoring and assessment to further characterize and identify specific sources and causes of water quality impairment.

15. Dischargers must submit a plan to monitor groundwater quality in agricultural areas to evaluate long-term trends in groundwater quality and protection of beneficial uses, including drinking water <NEW>.

16. The Executive Officer may postpone individual reporting of Individual Discharge Monitoring data (including but not limited to irrigation runoff and percolation to groundwater) in cases where all Dischargers in a watershed or subwatershed are achieving collective progress towards compliance and meeting milestones (e.g. tailwater reduction or elimination) per the defined time schedule. In this case, Dischargers must report individual monitoring data collectively as a group (including average, minimum, and maximum values for flow volume and waste concentrations or loads). <NEW>

17. Consistent with Water Code Section 13267, Dischargers must furnish the Central Coast Water Board, within a reasonable time, technical reports that the Executive Officer may request to determine compliance with this Order.

18. Pursuant to Water Code Section 13267(c), Central Coast Water Board or its authorized representatives may (a) enter upon the Discharger's premises where a regulated operation or activity is located or conducted; (b) inspect or photograph any operation or activity pertinent to this Order, (c) have access to and copy any records pertinent to this Order; and (d) sample or monitor to determine compliance with this Order. The inspection may be made with the consent of the owner or possessor of the facilities, or if consent is withheld, with a duly issued warrant. <CLARIFICATION OF EXISTING>

19. This Order is not transferable to any person except after notice to and approval by the Executive Officer. <NEW>

20. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code Sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. Sections 1531 to 1544). If a "take" will result from any action authorized under this Order, the Dischargers must obtain authorization for an incidental take prior to construction or operation of the project. Dischargers must be responsible for meeting all requirements of the applicable Endangered Species Act. <NEW>

Part B. Discharge Prohibitions

21. The discharge of waste that (a) causes, (b) has a reasonable potential to cause, or (c) contributes to an excursion above or outside the acceptable range for any Regional, State, or Federal numeric or narrative water quality standard is prohibited, so as to assure the protection of all actual or designated beneficial uses of waters of the State. <CLARIFICATION OF EXISTING>

22. The discharge of waste that results, or has reasonable potential to result in degradation of existing high quality water is prohibited <NEW>.

23. The discharge of waste that creates conditions of pollution or nuisance as defined in Water Code Sections 13050(l) and 13050(m) is prohibited.

24. The discharge of any waste not specifically regulated by the Order described herein is prohibited unless the Discharger complies with Water Code Section 13260(a) and the Central Coast Water Board either issues WDRs pursuant to Water Code Section 13263 or an individual waiver pursuant to Water Code Section 13269 or the conditions specified in Water Code Section 13264(a) have occurred. Waste specifically regulated by this Order includes earthen materials, such as soil, silt, sand, clay, and rock; inorganic materials, such as metals, plastics, salts, boron, selenium, potassium, and nitrogen; and organic materials, such as organic pesticides, that enter or have the potential to enter into waters of the State. <NEW>

25. The discharge of any waste at a location or in a manner different from that described in the approved Notice of Intent (NOI) is prohibited. <NEW>

26. The discharge of waste to groundwater with the beneficial use of municipal or domestic water supply in excess of maximum contaminant levels (MCLs) for primary and secondary drinking water standards established by the United States Environmental Protection Agency (USEPA) or California Department of Public Health (CDPH), whichever is more stringent, is prohibited. <CLARIFICATION OF EXISTING>

27. Excessive use or over-application of fertilizer in excess of crop needs is prohibited. <NEW>

28. The discharge of agricultural rubbish, refuse, irrigation tubing, or other solid wastes into surface waters or at any place where they may contact or may be eventually discharge to surface waters is prohibited. < NEW>

29. The discharge of wastes from point sources to waters of the United States subject to Clean Water Act Sections 301, 402 (NPDES), or 404 (dredge and fill) is prohibited.

30. The application of any chemical directly to surface waterbodies designated in the Basin Plan, including chemicals used for the purposes of breaking down applied pesticides or reducing associated toxicity, is prohibited, unless approved by the Central Coast Water Board. Any such chemical used for this purpose in irrigation systems must have documented effectiveness and must not result in further impact to water quality or aquatic habitat, and must not result in negative ecological impacts. <NEW>

31. Degradation of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat that results or has the potential to result in erosion and discharges of waste to waters of the State is prohibited, unless authorized by the Central Coast Water Board. Degradation of aquatic habitats results from human activities that result in water quality impairment and make habitats less suitable or less available to aquatic life, such as removal of riparian vegetation, channel clearing, creation of bare dirt areas, and hydromodification. <NEW>

Part C. Technical Reports

All technical reports submitted pursuant to the Order are required pursuant to Water Code Section 13267. Failure to submit technical reports in accordance with schedules established by the Order and/or the attachments, or failure to submit a complete technical report (i.e. of sufficient technical quality to be acceptable to the Executive Officer), may subject the Discharger to enforcement action pursuant to Water Code Section 13268.

Notice of Intent (NOI) and Acreage Updates <CLARIFICATION OF EXISTING>

32. Dischargers seeking authorization to discharge under this Order must submit a completed NOI to the Central Coast Water Board in a manner set forth in this Attachment B or as revised by the Executive Officer. Upon receipt of a Notice of Enrollment (NOE) approved by the Executive Officer the Discharger will be subject to this Order. The NOI form is included at the end of this Attachment B.

a. The NOI must contain all the information requested in a format as determined by the Executive Officer;

b. The NOI must identify the property covered by enrollment, landowner(s), operator(s) and other representative(s) authorized to sign reports submitted on behalf of the Discharger;

c. The NOI must include a statement of understanding of the requirements of this Order signed by both the landowner(s) and operator(s). <NEW>

d. The NOI must identify the ranch location, including a detailed map of the ranch area. The map(s) must identify the points where wastes as described in this Order are discharged from irrigated lands, location of proximal surface waterbodies, groundwater wells, tiledrains, and existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitats. <CLARIFICATION OF EXISTING>

e. The NOI must identify if the operation can be classified as a **"Low-Risk Discharge"** by: <CLARIFICATION OF EXISTING>

    1. Obtaining the Central Coast Vineyard Team (CCVT) Sustainability in Practice (SIP) certification, or
    2. By demonstrating that the Discharger meets all of the following criteria:
        a. Eliminates all tailwater;
        b. Does not farm adjacent to or in close proximity (within 1000 feet) to an impaired surface waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region (Impaired Waters List);
        c. Demonstrates effective use of integrated pest management techniques and does not use pesticides identified in Attachment A (or elsewhere) as having a high potential to degrade/pollute surface water;
        d. Demonstrates effective use of a nutrient management plan certified by a XXX *{Note: Appropriate professional certification, such as Certified Crop Advisor (CCA) or other certification with similar expertise and experience}* to be protective of water quality (e.g. will not contribute to an exceedance of water quality standards); and
        e. Demonstrates effective use of stormwater control measures to minimize erosion and sediment deposition using best practicable treatment or control.

f. The NOI must identify the following: <NEW, CLARIFICATION OF EXISTING>
    1. Crops grown;

2. Chemicals (pesticides, fertilizers, etc.) applied in a manner that may result in the material coming in contact with irrigation water, stormwater, surface water, or groundwater;
3. Irrigation system type;
4. Nitrate concentration in irrigation source water;
5. A description of the nature of any discharges (presence and volume of tailwater, tiledrains utilized, containment structures, subsurface drainage collection systems, etc.)
6. Management practices implemented to eliminate or minimize the discharges of waste to water which may impair water quality;
7. Backflow prevention devices on groundwater wells;
8. Other information as requested by the Executive Officer

g. Dischargers must ensure that key operating and site management personnel comply with the Order, Notice of Intent (NOI), and Farm Plan. In addition, Dischargers must maintain a copy of such documents at the operation for reference by operating personnel and inspection by Central Coast Water Board staff. <CLARIFICATION OF EXISTING>

a. In the event of a change in control or ownership of an operation presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner and operator of the existence of this Order by letter, and forward a copy the letter to the Executive Officer **immediately**.

i. Dischargers already enrolled in the 2004 Order must submit an updated 2010 NOI **within 60 days** of the adoption of this Order. <NEW>

j. Any Discharger acquiring control or ownership of an existing operation must submit a new NOI **within 60 days** of acquiring control or ownership of an operation. <CLARIFICATION OF EXISTING>

k. Any Discharger proposing to control or own a new operation that has the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater must submit an NOI **prior to any discharge or commencement of activities that may cause a discharge**, including land preparation prior to crop production **.** <NEW>

l. Dischargers who do not enroll in the Order in a timely manner as specified in this Order may be subject to WDRs and must submit a ROWD for consideration by the Executive Officer.

33. Dischargers must submit an Acreage Update form on **January 1, 2012** and annually thereafter. The Acreage Update form is included at the end of Attachment B. The purpose of the Acreage Update form is to keep the Central Coast Water Board

records up-to-date about Discharger and ranch information represented on the NOI. The Acreage Update form must contain all the information requested in a format as approved by the Central Coast Water Board Executive Officer;

Notice of Termination (NOT)

34. If a Discharger wishes to terminate coverage under the Order, the Discharger must submit a completed Notice of Termination (NOT) **immediately**. The NOT form is included at the end of this Attachment B. Termination from coverage will occur on the date specified in the NOT, unless specified otherwise. All discharges, as defined in Attachment A must cease before the date of termination, and any discharges on or after the date of termination shall be considered in violation of the Order, unless other Waivers of WDRs, General WDRs, or individual WDRs cover the discharge. <NEW>

Farm Water Quality Management Plan (Farm Plan)

35. Dischargers must develop and implement a Farm Plan. The Farm Plan must identify and focus on the water quality impacts associated with the specific operation and water quality impairments at the watershed or subwatershed, based on water quality data from individual discharge monitoring and/or watershed scale monitoring. Farm Plans must identify the management measures the Discharger is implementing to meet water quality standards, maintain existing high quality water, and achieve compliance with this Order, including any management practice requirements identified in Part E of this Attachment B to the Order, a schedule for implementation and verification monitoring to evaluate progress towards compliance with this Order. Specifically, the Farm Plan must identify management practices the grower is implementing to comply with this Order, including: <CLARIFICATION OF EXISTING>
    a. Irrigation Management: Maximize irrigation efficiency and management to effectively eliminate or minimize irrigation runoff and tailwater discharges using best practicable treatment or control;
    b. Pesticide Management: Maximize integrated pest management to eliminate or minimize toxic discharges and discharges of pesticides and herbicides to meet water quality standards using best practicable treatment or control;
    c. Nutrient Management: Maximize effective nutrient budgeting and management to eliminate or minimize discharge of nutrients to meet nutrient and biostimulatory water quality standards using best practicable treatment or control;
    d. Salinity Management: Maximize salinity management to eliminate or minimize discharge and leaching of salts to meet salt water quality standards using best practicable treatment or control;
    e. Sediment and Erosion Control: Maximize sediment and erosion control and stormwater management to eliminate or minimize discharge of sediments and

turbidity to meet water quality standards using best practicable treatment and control;

f. Aquatic Habitat Protection: Maximize protection of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat using buffers to minimize degradation of aquatic habitat and impacts to aquatic life beneficial uses using best practicable treatment and control;

36. The Farm Plan must include a schedule to effectively implement management practices to eliminate or minimize discharges of waste and achieve the requirements of this Order and applicable water quality standards, to assure the protection of all actual or designated beneficial uses of waters of the State. <CLARIFICATION OF EXISTING>

37. Dischargers must update Farm Plans at least annually with monitoring and site evaluation results, and specific adjustments in response to any results that measure progress towards water quality improvement and compliance with this Order (e.g., interim milestones identified in Part H). <NEW>

38. Pursuant to Water Code Section 13267, the Executive Officer may, at any time, require Dischargers to submit Farm Plans or specific modifications to Farm Plans.

39. The Discharger (including the landowner and operator) or a representative authorized by the Discharger must sign technical reports submitted to comply with the Order. <CLARIFICATION OF EXISTING>

40. Any person signing a report submitted as required by the Order must make the following certification:

"In compliance with Water Code Section 13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

41. Per MRP Order No. R3-2010-00XX, the Discharger must submit monitoring results and reporting based on sample analyses conducted according to test procedures approved by USEPA (40 CFR Part 136), authorized by the Executive Officer or otherwise indicated in this Order. Dischargers must identify any discharges that exceed applicable water quality standards. <NEW>

42. The Discharger or a third party approved by the Executive Officer must report water quality data to the Central Coast Water Board that is certified by a State registered professional engineer, registered geologist, State certified laboratory or approved third-party. Surface water quality data must be submitted in a format that is compatible with the Central Coast Ambient Monitoring Program (CCAMP), or as

directed by the Executive Officer. Groundwater quality data must be submitted in a format approved by the Executive Officer and compatible with the electronic deliverable format (EDF) used by the State Water Board's Geotracker data management system, or as directed by the Executive Officer. <NEW>

Part D. Water Quality Standards

43. Applicable water quality standards are identified in detail in Attachment A. <CLARIFICATION OF EXISTING>

Part E. Management Practice Implementation Requirements

44. Dischargers must implement management practices to eliminate the discharge of wastes to waters of the State, or achieve treatment or control of the discharge that will reduce wastes in the discharges and that will achieve compliance with applicable water quality standards, protect the beneficial uses of waters of the State, and prevent nuisance.

45. Dischargers must identify, select, and effectively implement management practices to meet water quality standards, maintain existing high quality water, and achieve compliance with this Order, including any management practice requirements Dischargers must address the priority water quality impacts associated with their specific operation and/or priority water quality impairments associated with a specific watershed or sub-watershed as identified in their Farm Plan. Specific management practice requirements associated with specific water quality issues are identified below. Based on the specific water quality impacts associated with an operation or priority water quality impairments associated with a specific watershed or sub-watershed, Dischargers must implement all or a subset of the identified strategies below, or alternative strategies that achieve a similar outcome to eliminate or minimize the discharge of waste to meet water quality standards and maintaing existing high quality water, using best practicable treatment or control. Dischargers are encouraged to collaborate and coordinate management measures to lower costs and achieve compliance on local, regional, or watershed scales. <CLARIFICATION OF EXISTING>

<u>Irrigation Management <NEW></u>

46. The purpose of the irrigation management element of the Farm Plan is to eliminate irrigation runoff and tailwater discharges or reduce their volume to meet water quality standards and maintain existing high quality water using best practicable treatment or control, and to assure compliance with this Order. The irrigation management element of the Farm Plan must include, but is not limited to:

a. Detailed map of the ranch area identifying the points where wastes as described in the Order are discharged from irrigated lands and identifying waterbodies receiving the discharge;
b. Type of irrigation system, distribution efficiency and distribution uniformity;
c. Average total water demand per crop;
d. Total water applied per crop;
e. The schedule, duration and frequency of irrigation events;
f. Evaluation of the potential for irrigation runoff and water quality impairment;
g. Evaluation of the potential for percolation of irrigation water below the root zone;
h. Identification of planned irrigation management practices (such as irrigation system and distribution uniformity upgrades, irrigation scheduling, water recycling and tailwater recovery);
i. Schedule for implementation to achieve compliance with this Order including compliance time schedules and interim milestones;
j. Progress towards interim milestones identified in Part H;

47. Dischargers must install and maintain the irrigation system to minimize or eliminate irrigation runoff and deep percolation to groundwater beyond the root zone that may transport waste constituents from irrigated lands to waters of the State. At a minimum, the irrigation system distribution uniformity must be designed and operated to achieve the following efficiencies: 0.70 for furrow, 0.75 for hand-move sprinkler, 0.80 for solid sprinkler systems, 0.85 for drip and micro-sprinkler systems; or alternative methods to achieve irrigation efficiency to eliminate or minimize irrigation runoff and discharge of waste using best practicable treatment and control.

48. Dischargers must implement appropriate irrigation scheduling duration and frequency, in consideration of weather factors such as wind and precipitation, to minimize or eliminate the discharge of irrigation runoff and to minimize deep percolation of water below the root zone using best practicable treatment and control.

49. Dischargers must maintain the irrigation delivery system to eliminate operational spills such as overflows from standing pipes or water remaining from previously operated gravity flow delivery systems.

50. **Within 2 years** from the adoption date of this Order, all Dischargers adjacent to, in close proximity to (within 1000 feet), or otherwise discharging to an impaired surface waterbody identified on the Impaired Waters List, or discharging to tributaries to such waterbodies, must implement management practices sufficient to eliminate irrigation runoff from their farming operation. Alternatively, Dischargers may provide water quality data and information per MRP Order No. R3-2010-00XX to demonstrate that any irrigation runoff has been sufficiently treated or controlled to meet water quality standards for the specific impairment or is of sufficient quality

where it will not cause or contribute to exceedances or excursions of any water quality standards in waters of the State.

51. Dischargers that discharge irrigation runoff to tile drains must report that discharge in their NOI. In addition, Farm Plans must describe the tile drain discharges and the management measures Dischargers will implement to assure the tile drain discharges are in compliance with this Order. Dischargers are encouraged to coordinate the implementation of management practices with other Dischargers discharging to common tile drains, including efforts to develop regional salt and nutrient management plans. The Executive Officer may require additional monitoring and reporting for discharges to tile drains as necessary to achieve compliance with this Order. .

52. Dischargers that install or construct containment structures for the purposes of storing or treating irrigation water must report such structures in their NOI, and construct and maintain such structures to avoid percolation of waste to groundwater and to avoid surface water overflows that have the potential to impair water quality.

Pesticide Runoff/Toxicity Elimination <NEW>

53. **Within 2 years** from the adoption date of this Order, all Dischargers adjacent or in close proximity (within 1000 feet) to any surface waterbody (creek, stream, river, slough, lake, pond, or other body of water) designated in the Basin Plan, or to tributaries to such waterbodies must implement management practices sufficient to eliminate toxicity in irrigation runoff or eliminate the discharge of irrigation runoff from their farming operation. Alternatively, Dischargers may provide water quality data and information per MRP Order No. R3-2010-00XX to demonstrate that any irrigation runoff has been sufficiently treated or controlled to achieve toxicity water quality standards, or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances of any toxicity water quality standards in waters of the State.

54. The purpose of the pesticide management element of the Farm Plan is to eliminate toxicity in discharges and surface water, to eliminate or minimize the discharge of pesticides to meet water quality standards using best practicable treatment or control, and to assure compliance with this Order. The pesticide management element of the Farm Plan must include, but is not limited to, the following:
    a. Location of the cropped area and the identification of the crop and pest(s) to be treated;
    b. For each of those crops/pests: the crop stage, frequency, and method of counting the pest and any natural enemies, to be used in a monitoring (scouting) program, or a description of the pest predictive model, such as degree-days, to be used;
    c. Scouting records to show the levels of the pest and any natural enemies monitored, or relevant model results;

d. Treatment thresholds or the treatment decision making process to be used, and any treatment timing guidelines;
e. For crops covered by a University of California (UC) Year-Round Integrated Pest Management (IPM) Program, a filled out up-to-date annual IPM checklist pertaining to the pest to be treated;
f. For crops not covered by a UC Year Round IPM Program, use of the UC IPM Pest Management Guidelines, if available;
g. Identification of pesticides used at the operation, including those identified in Attachment A of this Order as having a high potential to degrade/pollute surface water;
h. Identification of any chemicals (e.g. Landguard) proposed to be used for the purposes of breaking down applied pesticides or reducing associated toxicity;
i. Identification of planned pesticide management practices to eliminate or minimize toxicity and the discharge pesticides;
j. Schedule for pesticide management practice implementation;
k. Progress towards interim milestones identified in Part H;

55. Dischargers using pesticides with a high potential to degrade/pollute surface water (identified in Attachment A of this Order) and persons performing pest control using such pesticides for the Discharger, must comply with the following conditions to protect surface water from pesticide drift, in compliance with any existing pesticide use regulation: <NEW>
    a. Ground applications must not be made within 50 feet of any surface waterbody;
    b. Airblast, high-pressure wand or hand gun applications must not be made within 100 feet of any surface waterbody;
    c. Aerial applications must not be made within 150 feet of any surface waterbody;

56. Dischargers must not apply any chemical directly to surface waterbodies designated in the Basin Plan, including chemicals used for the purposes of breaking down applied pesticides or reducing associated toxicity (e.g. Landguard), unless approved by the Central Coast Water Board. Any such chemical used for this purpose in irrigation systems must have documented effectiveness and must not result in further impact to water quality or aquatic habitat, and must not result in negative ecological impacts. <NEW>

Nutrient and Salt Management <NEW>

57. **Within 4 years** from the adoption of this Order, all Dischargers adjacent or in close proximity (within 1000 feet) to any surface waterbody (creek, stream, river, slough, lake, pond, or other body of water) designated in the Basin Plan, or to tributaries to such waterbodies must implement management practices sufficient to eliminate nutrients and salts to meet water quality standards in irrigation runoff or eliminate the discharge of irrigation runoff from their farming operation. Alternatively, Dischargers

may provide water quality data and information per MRP Order No. R3-2010-00XX to demonstrate that any irrigation runoff has been sufficiently treated or controlled to achieve nutrient and salt water quality standards, or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances of any nutrient or salt water quality standards in waters of the State.

58. **Within 6 years** from adoption of this Order**,** all Dischargers must implement management practices sufficient to eliminate or minimize nitrate and salt in groundwater discharges to meet water quality standards. Alternatively, Dischargers may provide water quality data and information per MRP Order No. R3-2010-00XX to demonstrate that any discharge has been sufficiently treated or controlled to meet nitrate and salt water quality standards or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to additional loading of waste or exceedances of any nitrate or salt water quality standards in waters of the State.

59. The purpose of the nutrient management element of the Farm Plan is to eliminate or minimize nutrient discharges to groundwater and surface water to meet water quality standards using best practicable treatment or control, and to assure compliance with this Order. The nutrient management element of the Farm Plan must be certified by a XXX *{Note: Appropriate professional certification, such as Certified Crop Advisor (CCA) or other certification with similar expertise and experience}* to be protective of water quality (e.g. will not result in an exceedance of surface water quality standards or additional loading of waste constituents to groundwater per the required time schedule).

60. The nutrient management element of the Farm Plan must include, but is not limited to, the following:
    a. Average total crop nutrient demand and method(s) of determination per crop;
    b. Average total water demand per crop and total water applied per crop;
    c. Monthly record of fertilizer applications per crop, including fertilizer type and quantity applied (including but not limited to fertilizers, compost, manure, and humic acids);
    d. Nitrate concentration of irrigation source water;
    e. Timing of fertilizer application to maximize crop uptake, (6) an evaluation of fertilizer handling and storage activities;
    f. Estimation of the amount of fertilizer applied in excess of crop needs, if applicable;
    g. Estimation of excess or residual fertilizer/nutrients in the root zone at the end of the crop growing season;
    h. Identification of planned nutrient management practices (such as irrigation efficiency, nutrient budgeting, and nutrient trapping) to eliminate or minimize nutrients in irrigation runoff or percolation to groundwater;
    i. Identification of planned management practices related to fertilizer handling, storage, disposal, and management to prevent pollution;
    j. Schedule for implementation;

k. Progress towards interim milestones identified in Part H;

61. Dischargers that use leaching to control salt in the soil profile must not cause or contributes to exceedance of water quality standards. Leaching must not be performed to wash nitrate based salts from the soil profile. The Farm Plan must describe leaching management practices and assure compliance with this Order.

62. Dischargers must cease all foliar fertilizer applications a minimum of 72 hours before any forecasted rain event and up to 72 hours after a rain event has occurred.

63. Dischargers must implement proper handling, storage, disposal and management of fertilizer to prevent discharge of waste to waters of the State.

Sediment Management / Erosion Control / Stormwater Management <NEW>

64. **Within 3 years** from the adoption of this Order, all Dischargers adjacent or in close proximity (within 1000 feet) to any surface waterbody (creek, stream, river, slough, lake, pond, or other body of water) designated in the Basin Plan or to tributaries to such waterbodies must implement management practices sufficient to eliminate or minimize sediment and turbidity to meet water quality standards in irrigation runoff or eliminate the discharge of irrigation runoff from their farming operation. Alternatively, Dischargers may provide water quality data and information per MRP Order No. R3-2010-00XX to demonstrate that any irrigation runoff has been sufficiently treated or controlled to meet sediment and turbidity water quality standards or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances of any sediment or turbidity water quality standards in waters of the State.

65. The purpose of the erosion control and sediment management element of the Farm Plan is to maximize sediment and erosion control and stormwater management to eliminate or minimize discharge of sediments and turbidity to meet water quality standards using best practicable treatment and control, and to assure compliance with this Order. Dischargers are encouraged to coordinate the implementation of stormwater management practices with other Dischargers in the watershed or subwatershed to maximize water quality protection and reduce costs. The sediment management element of the Farm Plan must include, but is not limited, the following:
    a. The identification and implementation of management practices to eliminate or minimize the discharge of sediments by (1) controlling erosion, (2) reducing soil detachment, (3) reducing sediment transport, and (4) trapping sediments.
    b. Management practices that will be implemented to achieve the following: (1) maintain crop residue or vegetative cover on the soil; (2) improve soil properties; reduce slope length, steepness, or unsheltered distance; reduce effective water and/or wind velocities;
    c. Erosion control management measures that reduce or prevent sheet and rill erosion, wind erosion, concentrated flow, streambank erosion, soil mass

movements, road bank erosion, construction site erosion, and irrigation-induced erosion;
d. Specific stormwater management measures;
e. Schedule for implementation;
f. Progress towards interim milestones identified in Part H;

Aquatic Habitat Protection <NEW>

66. The purpose of the aquatic habitat protection element of the Farm Plan is to maximize protection of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat using buffers to eliminate or minimize degradation of aquatic habitat and discharge of waste, to meet water quality standards and protect aquatic life beneficial uses using best practicable treatment or control, and to assure compliance with this Order. The aquatic habitat protection element of the Farm Plan must include the following:
    a. Maps locating and photo documentation of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat located on ranch property;
    b. Maps and photo documentation of the presence of minimum buffer widths as specified in Table 3, per the time schedule and milestones in Part H;
    c. Annual photo documentation that verifies the ongoing protection of existing perennial, intermittent, or ephemeral streams, riparian and wetland area habitats;
    d. Identification of management measures implemented to protect or restore aquatic habitat;
    e. Implementation of aquatic habitat requirements in Part G, including the development of a *Riparian Function Protection and Restoration Plan, if applicable;*
    f. Schedule for implementation;
    g. Progress towards interim milestones identified in Part H;

Commercial Nursery, Nursery Stock Production and Greenhouse Requirements <NEW>

67. Dischargers who own or operate commercial nurseries, nursery stock production and greenhouse operations that have point-source discharges as defined in Clean Water Act, and fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors) are not covered under this Order and must apply for individual WDRs.

68. Dischargers who own or operate commercial nurseries, nursery stock production and greenhouse operations that do not have point-source type discharges and have pervious floors must develop and implement a Farm Plan that includes management practices to protect and improve water quality by managing irrigation, pesticides, nutrients, salinity, sediment, and aquatic habitat. Farm Plans must identify the

management measures the Discharger is implementing to meet water quality standards, maintain existing high quality water, and achieve compliance with this Order, including any management practice requirements identified Part E of this Attachment B to the Order, a schedule for implementation and verification monitoring to evaluate progress towards compliance with this Order

69. Commercial nursery, nursery stock production and greenhouse operation Farm Plans must comply with any applicable stormwater permit.

70. Dischargers who own or operate commercial nurseries, nursery stock production and greenhouse operations that grow crops in pots and/or containers must implement management practices that keep rainwater and/or stormwater separated from wastewater and irrigation runoff, and prevent rainwater from coming into contact with containerized plants.

71. Dischargers who own or operate commercial nurseries, nursery stock production and greenhouse operations that grow crops in pots and/or containers must monitor wastewater and irrigation runoff as specified in MRP Order No. R3-2010-00XX.

Part F. Groundwater Protection Requirements <NEW>

72. **Within 6 months** from the adoption of this Order, all Dischargers Dischargers must report the following groundwater well location and construction information regarding groundwater wells located at the agricultural operation, in a format approved by the Central Coast Water Board Executive Officer:
    a. Owner-Assigned Well Identification;
    b. Well Location (Latitude and Longitude, measured in decimal degrees and reported to 7 decimal points);
    c. Water Use Category (e.g. domestic drinking water and/or agricultural);
    d. Well construction Information (Well-logs, as-built drawings and descriptions, if available), including total depth, screened intervals, specific capacity, and pumping capacity.
    e. Use for fertigation or chemigation purposes;
    f. Type of backflow prevention devices utilized;
    g. Photograph documenting condition of well and backflow prevention devices;
    h. All historical water quality information;

73. Dischargers that fertigate, chemigate, or apply any chemicals through the irrigation system connected to a groundwater well, must install and properly maintain backflow prevention device(s) to prevent the discharge of waste to groundwater, consistent with any applicable Department of Pesticide (DPR) requirements and local ordinances.

74. Dischargers must monitor and report depth to water and sample groundwater from groundwater wells per MRP Order No. R3-2010-00XX at a quarterly sampling frequency of four consecutive quarters (i.e., first quarter is from January 1 to March 31, etc.) for the first year followed by annual monitoring thereafter.

75. Dischargers must properly destroy all abandoned groundwater wells, exploration holes or test holes, as defined by Department of Water Resources (DWR) Bulletin 74-81 and revised in 1988, in such a manner that they will not produce water or act as a conduit for mixing or otherwise transfer groundwater or waste constituents between permeable zones or aquifers. Proper well abandonment must be done consistent with any applicable DWR requirements and local ordinances,

76. Dischargers must construct and maintain ponds, reservoirs or other water containment structures to avoid leaching of waste to groundwater. Dischargers must sample surface water held in containment structures monthly as specified in the MRP Order No. R3-2010-00XX and promptly notify the Executive Officer in writing, if concentrations exceed applicable water quality standards.

77. Pursuant to Water Code Section 13267, the Executive Officer may require Dischargers to conduct sampling of private domestic wells in or near agricultural areas with high nitrate in groundwater and submit technical reports evaluating the sampling results. In addition, pursuant to Water Code Section 13304, the Central Coast Water Board may require Dischargers to provide alternative water supplies or replacement water service, including wellhead treatment, to affected public water suppliers or private domestic well owners.

Part G. Aquatic Habitat Protection Requirements <NEW>

This Part G applies to Dischargers who discharge or threaten to discharge waste to waters of the State that cause or contribute to exceedances or excursions of water quality standards due to disturbance and degradation of aquatic habitat as described below. Disturbance and degradation of aquatic habitats result from human activities that result in water quality impairment and make habitats less suitable or less available to aquatic life, such as removal of riparian vegetation, channel clearing, creation of bare dirt areas, and hydromodification.

78. Dischargers must protect existing aquatic habitat, collectively described as perennial, intermittent, or ephemeral streams, and riparian and wetland area habitat and prevent discharges of waste to waters of the state to meet water quality standards (e.g. temperature, turbidity, dissolved oxygen, etc), maintain existing high quality water, protect beneficial uses, and achieve compliance with this Order using best practicable treatment and control. Management practices to prevent such discharges of waste include, but are not limited to the following:

a. Maintaining the following riparian functions: Streambank stabilization and erosion control; stream shading and temperature control; chemical filtration; flood water storage; aquatic life support; wildlife support;
b. Maintaining naturally occurring mixed vegetative cover (such as trees, shrubs, grasses, as described in NRCS Ecological Site Descriptions or other similar regional biological typologies) in aquatic habitat areas and their buffer zones;
c. No clearing of beneficial vegetation for food safety reasons;
d. No clear cutting or creating bare dirt areas;
e. No channel clearing except for agriculture ditches;
f. Preventing man made erosion and sedimentation, and maintaining shade over surface waters;
g. Other measures include limiting agricultural activities, such as equipment operation, in and near aquatic habitat;

79. The Central Coast Water Board may authorize aquatic habitat disturbance necessary for the purposes of water quality improvement or restoration of aquatic habitat. In these cases, Dischargers must implement appropriate and practicable measures to avoid or minimize impacts to aquatic habitat;

80. Where the discharge of waste impacts waters of the State that constitute wetlands or jurisdictional waters of the United States, the Discharger shall notify the Executive Officer and seek waste discharge requirements or Clean Water Act Section 401 certification and any required federal permit.

81. **Within 4 years** from the adoption of this Order, Dischargers must document with photo documentation in the Farm Plan, the presence of minimum riparian buffer widths adjacent to perennial and intermittent streams, per the time schedule and milestones in Part H below. Required buffer widths are based on stream tiers and identified in Table 1. Stream tiers are based upon modeled average daily natural flow and identified in Table 2. The buffer width for streams is measured from the top of the bank in each direction. In the case of an existing engineered levee system, the outer bank of the existing levee will be the outer edge of the buffer width. Where existing riparian vegetation width is greater than the riparian buffer widths required in Table 1, the Discharger must protect and maintain the maximum buffer width.

Table 1. Minimum riparian buffer widths for perennial and intermittent streams.

Tier	Minimum Riparian Buffer Width	Modeled Average Daily Natural Flow
Tier 1	50 feet	1- 15 cfs
Tier 2	75 feet	15 – 50 cfs
Tier 3	100 feet	50 cfs and above

Table 2. Tier 2 and Tier 3 streams. All other perennial or intermittent streams not listed in Table 2 are considered Tier 1. Tiers are based on the National Hydrography Dataset Plus' (NHDPlus) estimated unit runoff mean annual natural flow.

Tier 2 (75 Foot Buffer)	**Tier 3 (100 Foot Buffer)**
Aptos Creek	Carmel River (from Pacific Ocean to Tularcitos Creek confluence)
Arroyo Grande Creek	Estrella River (from Salinas River confluence to Yokum Bend)
Arroyo Seco	Pajaro River (from Pacific Ocean to San Benito River confluence)
Bear Creek	Salinas River (from Pacific Ocean to San Marcos Creek confluence)
Big Sur River	San Lorenzo River (from San Lorenzo River Lagoon at Crossing Street to Boulder Creek confluence)
Carbonera Creek	Santa Maria River (from Pacific Ocean to 0.9 miles east of Hwy 101)
Carmel River (upstream from Tularcitos Creek confluence)	Santa Ynez River (from Pacific Ocean to 5 miles west of Hwy 101 bridge)
Cholame Creek	
Cuyama River	
Estrella River (upstream from Yokum Bend)	
Little Sur River	
Nacimiento River	
Old Salinas River Estuary	
Pajaro River (upstream from San Benito River confluence)	
Paso Robles Creek	
Salinas Reclamation Canal (from Tembladero Slough confluence to Natividad Creek confluence)	
Salinas River (from San Marcos Creek confluence to Paso Robles Creek confluence)	
San Antonio River	
San Benito River	
San Juan Creek	
San Lorenzo Creek	
San Lorenzo River (upstream from Boulder Creek confluence)	

San Luis Obispo Creek	
Santa Maria River (from 0.9 miles east of Hwy 101 bridge to Cuyama River confluence)	
Santa Rosa Creek	
Santa Ynez River (from 5 miles west of Hwy 101 bridge to Lake Cachuma)	
Scott Creek	
Soquel Creek	
Tembladero Slough	
Tequisquita Slough	
Waddell Creek	
Zayante Creek	

82. **Within 4 years** of the Board adoption of this Order, Dischargers must document with photo documentation in the Farm Plan, the presence of minimum buffer widths of fifty feet as measured from the high water mark for lakes, wetlands, estuaries, lagoons or any other natural body of standing water, as specified in Table 3, per the time schedule and milestones in Part H below.

Table 3. Minimum buffer widths for lakes, wetlands, and estuaries.

Feature	**Minimum Buffer Width**
Lakes, wetlands, estuaries and other natural body of standing water	50 feet

83. As an alternative to establishing and maintaining minimum buffer widths as required in Tables 1 – 3 above, a Discharger or group of Dischargers may develop and implement a *Riparian Function Protection and Restoration Plan*, as part of the Farm Plan, that demonstrates how all of the following riparian functions are to be restored and protected: (a) Streambank stabilization and erosion control, (b) stream shading and temperature control, (c) chemical filtration, (d) flood water storage, (e) aquatic life support, (f) Wildlife support. The *Riparian Function Protection and Restoration Plan* must be certified by a State registered Professional Engineer or Registered Geologist and include a schedule for implementation, measurable success criteria and a maintenance and monitoring plan. The *Riparian Function Protection and Restoration Plan* must be submitted **within 2 years** of the Board adoption of this Order for approval by the Executive Officer.

Part H. Time Schedule

General time schedules and milestones are identified in Tables 4 through 8. Dischargers must meet milestones as described by identified compliance dates. Interim milestones are identified to evaluate progress towards compliance with this Order. The

milestones are specific dates to achieve water quality objectives in irrigation runoff and discharge to groundwater.

Table 4. All Dischargers must comply with the following time schedule.

Task	**Compliance Date**
Submit completed 2010 Notice of Intent	**For existing Dischargers enrolled under the 2004 Conditional Waiver -** Within 60 days of Board adoption of the Order; For any **Discharger** acquiring control or ownership of an existing operation - Within 60 days of acquiring control or ownership of an operation. For any **new proposed Discharger** - Prior to any discharge.
Submit Annual Acreage Update	**January 1, 2012** and annually thereafter
Submit copy of notification letter to new Discharger (owner and/or operator) in the event of a change in control or ownership of an operation.	**Immediately**, when applicable
Submit Notice of Termination	**Immediately**, when applicable
Develop and Implement Farm Plan to address priority water quality issues	**Immediately,** when applicable
Submit Farm Plan or required elements of a Farm Plan	**Within 30 days** of written notification
Submit any required modifications to the Farm Plan	**Within 30 days** of written notification
Submit updated Quality Assurance Project Plan and Sampling and Analysis Plan for Watershed Monitoring Program for Executive Officer Approval	**Within 3 months** from adoption of this Order
Submit Quality Assurance Project Plan and Sampling and Analysis Plan for	**Within 3 months** from adoption of this Order

Individual Discharge Monitoring for Executive Officer Approval	
Submit groundwater well location and construction information	**Within 6 months** from adoption of this Order
Start Date for Implementing Watershed Monitoring Program	**Within 6 months** from adoption of this Order
Start Date for Implementing Individual Discharge Monitoring	**Within 6 months** from adoption of this Order
Submit Monitoring Reports	**Within 3 months** after start of monitoring, and quarterly thereafter – or as otherwise directed by the Executive Officer.
Submit Conceptual Plan for Groundwater Monitoring Program for Executive Officer approval.	**Within 2 years** from the adoption of this Order.

Table 5. Dischargers adjacent to or in close proximity (within 1000 feet) to an impaired surface waterbody identified on Impaired Waters List or their tributaries must comply with the following time schedule and milestones.

Milestone	Compliance Date
Eliminate discharge of irrigation runoff, or provide water quality data and information to demonstrate that any discharge of irrigation runoff has been sufficiently treated or controlled to meet water quality standards or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances or excursions of any water quality standards in waters of the State.	**Within 2 years** from the adoption of this Order, with the following interim milestones: *Year 1 - 50% runoff volume reduction* *18 Months - 75% runoff volume reduction*

Table 6. Dischargers adjacent to or in close proximity (within 1000 feet) to any surface waterbody (creek, stream, river, slough, lake, pond, or other body of water) designated in the Basin Plan or their tributaries must comply with the following time schedule and milestones

Milestone	Compliance Date
Eliminate toxicity in irrigation runoff or eliminate the discharge of irrigation runoff from their farming operation. Alternatively, Dischargers may provide water quality data and information to demonstrate that any irrigation runoff has been sufficiently treated or controlled to meet toxicity water quality standards, or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances of any toxicity water quality standards in waters of the State.	**Within** 2 years from the adoption of this Order, with the following interim milestones: *Year 1 - XX* *18 Months - XX*
Eliminate or minimize sediment and turbidity to meet water quality standards in irrigation runoff or eliminate the discharge of irrigation runoff from their farming operation. Alternatively, Dischargers may provide water quality data and information to demonstrate that any irrigation runoff has been sufficiently treated or controlled to meet sediment and turbidity water quality standards or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances of any sediment or turbidity water quality standards in waters of the State.	**Within 3 years** from the adoption of this Order, with the following interim milestones: *Year 1 - XX* *Year 2 - XX*
Eliminate nutrients and salts to meet water quality standards in irrigation runoff or eliminate the discharge of irrigation runoff from their farming operation. Alternatively, Dischargers may provide water quality data and information to demonstrate that any irrigation runoff has been sufficiently treated or controlled to achieve nutrient and salt water quality	**Within 4 years** from the adoption of this Order, with the following interim milestones: *Year 1 - XX* *Year 2 - XX* *Year 3 - XX*

standards, or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to exceedances of any nutrient or salt water quality standards in waters of the State.	
Protect existing aquatic habitat	**Immediately**
Achieve full implementation of riparian buffer widths as identified in Tables 1 – 3 or as identified in certified Riparian Function Protection and Restoration Plan.	**Within 4 years** from the adoption of this Order, with the following interim milestones: *Year 2 – 1/3 of riparian buffer is protected or Plan completion, if applicable* *Year 3 – 2/3 of riparian buffer is protected*

Table 7. All Dischargers must comply with the following time schedule and milestones related to nitrate and salt in groundwater.

Milestone	Compliance Date
Eliminate or minimize nitrate and salt in groundwater discharges to meet water quality standards. Alternatively, Dischargers may provide water quality data and information to demonstrate that any discharge has been sufficiently treated or controlled to meet nitrate and salt water quality standards or is of sufficient quality where it will maintain existing high quality water, and not cause or contribute to additional loading of waste or exceedances of any nitrate or salt water quality standards in waters of the State.	**Within 6 years** from the adoption of this Order, with the following interim milestones: *Year 2 - XX* *Year 4 – XX*

Part I. Fees

84. Dischargers must pay a fee to the State Water Resources Control Board in compliance with the fee schedule contained in Title 23 California Code of Regulations**.**

85. Dischargers must pay any relevant monitoring fees (e.g. Cooperative Monitoring Program) necessary to comply with monitoring and reporting requirements of this Order.

S:\Shared\Agricultural Regulatory Program\Ag. Order 2.0\February 1 2010 Docs\Final Documents\Attachment 3-PrelimDraftAgOrder_020110.doc

EXHIBIT H

PRELIMINARY DRAFT
STAFF RECOMMENDATIONS
FOR AN
AGRICULTURAL ORDER

CONDITIONALLY WAIVING INDIVIDUAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

Preliminary Draft Report

CENTRAL COAST REGIONAL
WATER QUALITY CONTROL BOARD

February 1, 2010

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STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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Michael Thomas, Assistant Executive Officer

This report was prepared by
Water Board Staff
under the direction of
Angela Schroeter, Senior Engineering Geologist and
Lisa Horowitz McCann, Environmental Program Manager

with assistance from the following Central Coast Water Board Staff:

Mary Adams
Monica Barricarte
Burton Chadwick
Cecile DeMartini
Katie DiSimone
Donette Dunaway
John Goni
Phil Hammer
Hector Hernandez
Mike Higgins
Corinne Huckaby
Alison Jones
Matt Keeling
Howard Kolb
Peter Meertens
Jill North
Sorrel Marks
John Mijares
Harvey Packard
John Robertson
Chris Rose
Elaine Sahl
Kim Sanders
Steve Saiz
Sheila Soderberg
Dean Thomas
Thea Tryon
Karen Worcester

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1. Preliminary Draft Report on Water Quality Conditions
2. Draft Summary Table of Changes Related to Existing Conditional Waiver
3. Preliminary Draft Agricultural Order
4. Draft Surface Water and Riparian Monitoring Sampling Parameters
5. Preliminary Draft Initial Study and Environmental Checklist
6. List of References Consulted and/or Cited for Preliminary Draft Agricultural Order

1.0 Introduction

The Central Coast Water Board currently regulates discharges from irrigated lands with a Conditional Waiver of Waste Discharge Requirements (Order No. R3-2009-0050, hereafter current Order) that expires in July 2010. The Central Coast Water Board is beginning their process to consider conditions to be included in a new or revised Order that achieves desired water quality improvement.

1.1 What is the issue?

The Central Coast Water Board must determine how best to regulate agricultural discharges on the Central Coast to directly address the major water quality issues of toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater so that we achieve desired water quality outcomes that support all beneficial uses. Agricultural discharges (primarily due to contaminated irrigation runoff and percolation to groundwater) are a major cause of water quality impairment. The main problems are:

1. In the Central Coast Region, thousands of people are drinking water contaminated with unsafe levels of nitrate or are drinking replacement water to avoid drinking contaminated water. The cost to society for treating polluted drinking water is estimated to be in the hundreds of millions of dollars.
2. Aquatic organisms in large stretches of rivers in the entire region's major watersheds have been severely impaired or completely destroyed by severe toxicity from pesticides.

These impairments are well documented, severe, and widespread. Nearly all beneficial uses of water are impacted, and the discharges causing the impairments continue. Immediate and effective action is necessary to improve water quality protection and resolve the widespread and serious impacts on people and aquatic life.

1.2 Why is the issue important?

The Central Coast Region's coastal and inland water resources are unique, special, and in some areas still of relatively high quality. Millions of Central Coast residents depend on groundwater for nearly all their drinking water from both deep municipal supply wells and shallow domestic wells. In addition, the region supports some of the most significant biodiversity of any temperate region in the world and is home to many sensitive natural habitats and species of special concern. These resources and the beneficial uses of the Central Coast water resources are severely impacted or threatened by agricultural discharges. At the same time, the Central Coast Region is one of the most productive and profitable agricultural regions in the nation, reflecting a gross production value of more than six billion dollars in 2008, contributing 14 percent of California's agricultural economy. For example, agriculture in Monterey County supplies

80 percent of the nation's lettuces and nearly the same percentage of artichokes and sustains an economy of 3.4 billion dollars.[1]

Thousands of people rely on public supply wells with unsafe levels of nitrate and other pollutants. Excessive nitrate concentration in drinking water is a significant public health issue resulting in risk to infants for methemoglobinemia or "blue baby syndrome", and adverse health effects (i.e., increased risk of non-Hodgkin's, diabetes, Parkinson's disease, Alzheimers, endrocrine disruption, cancer of the organs) among adults as a result of long-term consumption exposure. Seventeen percent of public supply wells surveyed by the Department of Water Resources (DWR) showed contaminants above the drinking water standard, with nitrate as the most frequent chemical to exceed the drinking water standard. In a Monterey County study, in portions of the Salinas Valley, up to 50 percent of the wells surveyed had concentrations above the nitrate drinking water standard; with average concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water standard. Water Board staff estimate several additional thousands of people are drinking from shallow private domestic wells. For these wells, water quality is not regulated, is often unknown, not treated, or treated at significant cost to the well owner.

Agricultural discharges of fertilizer are the main source of nitrate contamination to groundwater based on local nitrate loading studies. In some cases, up to 30 percent of applied nitrogen may have leached to groundwater in the form of nitrate. Due to elevated concentrations of nitrate in groundwater, many public water supply systems have abandoned wells and established new wells or sources of drinking water, or are required to remove nitrate before delivery to the drinking water consumer, often, at significant cost.

Agricultural discharges have impaired surface water quality in the Central Coast Region, such that some creeks are found toxic (lethal to aquatic life) every time the site is sampled and as a result many areas are devoid of aquatic organisms essential to ecological systems. Vertebrates, including fish, rely on invertebrates as a food source. Consequently, invertebrates are key indicators of stream health, and are commonly used for toxicity analyses and assessments of overall habitat condition. The majority of creeks, rivers and estuaries in the Central Coast Region are not meeting water quality standards. Most of these waterbodies are impacted by agriculture. These conditions were determined and documented on the Central Coast Water Board's 2008 Clean Water Act Section 303(d) List of Impaired Waterbodies. The three main forms of pollution from agriculture are excessive runoff of pesticides and toxicity, nutrients, and sediments. In a statewide study, the Central Coast Region had the highest percentage of sites with pyrethroid pesticides detected and the highest percentage of sites exceeding toxicity limits. In addition, there are more than 46 waterbodies that exceed the nitrate water quality standard and several waterbodies routinely exceed the nitrate water quality standard by five-fold or more. In addition to causing the human health impacts discussed previously, these high levels of nitrate are impacting sensitive fish

[1] Salinas Valley Chamber of Commerce http://atlantabrains.com/ag_industry.asp

species such as the threatened Steelhead, endangered Coho Salmon, by causing algae blooms that remove oxygen from water, creating conditions unsuitable for aquatic life.

The water quality conditions throughout the region are also impacting several other threatened and endangered species, including the marsh sandwort (arenaria paludicola), Gambel's watercress (nasturtium rorippa gambelii), California least tern (sterna antillarum browni), and red-legged frog (Rana aurora). The last remaining known populations of the two endangered plants, marsh sandwort and Gambel's watercress, occur in Oso Flaco Lake, are critically imperiled and depend upon the health of the Oso Flaco watershed to survive.

1.3 What is the Central Coast Water Board's regulatory role?

The California Regional Water Board's and State Water Resources Control Board's mission and regulatory responsibility *"is to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations."* The Central Coast Water Board is responsible for regulating discharges of waste to the region's waterbodies to protect beneficial uses of the water. In some cases, such as the discharge of nitrate to groundwater, the Water Board is the only agency with regulatory responsibility and authority for controlling the discharge to waters of the State. The Central Coast Water Board issues Orders that contain prohibitions on and requirements for discharging waste and enforces violations of the prohibitions and requirements in these Orders. The Central Coast Water Board also develops water quality standards and implements plans and programs. These activities are conducted to best protect the State's waters, recognizing the local differences in climate, topography, geology and hydrology. As the current Order expires in July 2010, The Central Coast Water Board must immediately determine how best to regulate agricultural discharges on the Central Coast to directly address the major water quality issues of toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater so that we achieve desired water quality outcomes that support all beneficial uses.

1.4 Why is the Central Coast Water Board changing the current Order?

The Central Coast Water Board and other stakeholders successfully developed an Order (in the form of a Conditional Waiver of Waste Discharge Requirements (2004 Conditional Waiver) through a stakeholder process and the Board adopted the Conditional Waiver on July 9, 2004 and renewed it for one year on July 10, 2009. Agricultural dischargers enrolled and established farm plans based on education and outreach, and created an industry-led, nonprofit, monitoring program. The current Conditional Waiver, however, lacks clarity and does not focus on accountability and verification of directly resolving the known water quality problems. The conditions of the 2004 Conditional Waiver address all common problems associated with all agricultural operations equally and without specific targets or timelines for compliance. Currently, the Water Board and the public have no direct evidence that water quality is improving

due to the 2004 Conditional Waiver. The current watershed-scale monitoring program only indicates long-term (multi-year), receiving water changes without measuring : 1) if individual agricultural dischargers are in compliance with Conditional Waiver conditions or water quality standards, or 2) if short-term progress towards water quality improvements on farms or in agricultural discharges is occurring. We know that better on-site information assists growers in improving farming practices and some growers have advanced efforts toward water quality protection. Currently, information that provides evidence of on-farm improvements and reductions in pollution loading from farms is not required, and therefore probably does not exist for most farms. The public, including those who are directly impacted by farm discharges, and the Water Board, do not have the necessary evidence of compliance or improvements. This is unacceptable given the magnitude and scale of the documented water quality impacts and the number of people directly affected. At a minimum, we continue to observe that agricultural discharges continue to severely impact water quality. The Central Coast Water Board must determine how best to regulate agricultural discharges on the Central Coast to directly address the major water quality issues of toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater so that we achieve desired water quality outcomes that support all beneficial uses.

1.5 What actions are necessary to achieve water quality improvement?

The Central Coast Water Board must fulfill its regulatory responsibility to protect water quality. The Central Coast Water Board must determine how best to regulate agricultural discharges on the Central Coast to directly address and resolve the major water quality issues of toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater so that we achieve desired water quality outcomes that support all beneficial uses. The agricultural industry must be accountable for preventing and addressing the water quality issues caused by agriculture. Together, we must control agricultural discharges – especially contaminated irrigation runoff and percolation to groundwater. The Central Coast Water Board must focus on those areas of the Central Coast Region already known to have, or be at great risk for, severe water quality impairment. The agricultural industry must implement the most effective management practices (related to irrigation, nutrient, pesticide and sediment management) that will most likely yield the greatest amount of water quality protection, and verify their effectiveness with on-farm data. The Central Coast Water Board must establish a known and reasonable time schedule, with clear and direct methods of verifying compliance and monitoring progress over time so that agricultural dischargers understand when and if they are successfully reducing their contribution to the problems or maintaining adequate levels of protection. We all must adapt to what we learn from measures of progress, so we efficiently and effectively achieve water quality improvement over time. To prevent further water quality impairment and impact to beneficial uses, we must take action now.

1.6 A Dilemma:

Agricultural discharges continue to contribute to already significantly impaired water quality and impose certain risk and massive costs to public health, drinking water supplies, aquatic life, and valued water resources. If we do not protect water quality and beneficial uses, these costs and other impacts are likely to increase signficantly. Resolving agricultural water quality issues will greatly benefit public health, present and future drinking water supplies, aquatic life, aesthetic, recreational, and other beneficial uses. Resolving agricultural water quality issues will require changes in farming practices, will impose increasing costs to individual farmers and the agricultural industry at a time of competing demands on farm income, regulatory compliance efforts, and food safety challenges, and may impact the local economy.

Protecting water quality and the environment while protecting agricultural benefits and interests will require change and may shift who bears the costs and who reaps the benefits. There will be a spectrum of adaptation by individual farmers to any change in water quality requirements – some farmers will react by actively adapting to the change and find efficiencies and advantages to achieving compliance; and some farmers may be more resistant to change or otherwise have greater difficulty adapting, possibly resulting in negative impacts. These impacts can be reduced by the use of reasonable time schedules and by providing that individual farmers identify how they can best meet water quality standards in their individual Farm Plans.

However, continuing to operate in a mode that causes constant or increasingly severe receiving water problems is not a sustainable model. Change will be effected one way or another. Without proactive improvements in operation, a non-sustainable model will result in increasing changes such as increasingly impaired habitat, and reactive fixes such as additional costly water supply treatment, and additional cost for developing new supplies (example: northern Monterey County water supply on-going development costs due in part to groundwater overuse by Salinas Valley water users and seawater intrusion). There is no “new water” other than through desalinization which is expensive not only in terms of money but in energy costs.

To prevent further water quality impairment and impact to beneficial uses, the Central Coast Water Board must take action immediately to better regulate agricultural discharges on the Central Coast to directly address the major water quality issues of toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater so that we achieve desired water quality outcomes that support all beneficial uses.

2.0 Background

The California Regional Water Quality Control Board (Central Coast Water Board) Agricultural Regulatory Program was initiated in 2004, with the adoption of a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (2004 Conditional Waiver, Order No. R3-2004-0117). The 2004 Conditional Waiver expired on July 9, 2009 and the Central Coast Water Board extended it until July 10, 2010 (Order No. R3-2009-0050).

The intent of the 2004 Conditional Waiver was to regulate discharges from irrigated lands to ensure that such dischargers are not causing or contributing to exceedances of any Regional, State, or Federal numeric or narrative water quality standard. The requirements of the 2004 Conditional Waiver focused on enrollment, education and outreach, the development of Farm Water Quality Management Plans (Farm Plans), and receiving (watershed-scale) water quality monitoring. However, substantial evidence indicates discharges of waste are causing significant exceedances of numeric and narrative water quality standards resulting in negative impacts on beneficial uses.

Prior to the expiration of the current Conditional Waiver in July 2010, the Central Coast Water Board must consider the adoption of new or revised conditions to achieve desired water quality improvement. This report provides background and supporting information, and the terms and requirements for these Preliminary Staff Recommendations for an Agricultural Order for Discharges from Irrigated Lands (Preliminary Draft Agricultural Order). Specifically, this report contains:

1. an introduction explaining the context for considering a new Agricultural Order,
2. a description of the water quality impacts caused by agricultural discharges,
3. the Preliminary Draft Agricultural Order,
4. and a preliminary draft evaluation of environmental impacts from implementation of this Preliminary Draft Agricultural Order (initial study/environmental checklist).

3.0 The Preliminary Draft Agricultural Order

3.1 Summary

The Preliminary Draft Agricultural Order, like the 2004 Conditional Waiver, must regulate discharges of waste from irrigated lands to ensure that such dischargers are not causing or contributing to exceedances of any Regional, State, or Federal numeric or narrative water quality standard, such that all beneficial uses are protected. The Preliminary Draft Agricultural Order directly addresses agricultural discharges – especially contaminated irrigation runoff and percolation to groundwater causing widespread toxicity, unsafe levels of nitrate, unsafe levels of pesticides, and excessive sediment in surface waters and/or groundwaters. The Preliminary Draft Agricultural Order also focuses on those areas of the Central Coast Region already known to have, or at great risk for, severe water quality impairment. In addition, the Preliminary Draft

Agricultural Order requires the effective implementation of management practices (related to irrigation, nutrient, pesticide and sediment management) that will most likely yield the greatest amount of water quality protection. The Preliminary Draft Agricultural Order includes immediate requirements to eliminate or minimize the most severe or impactful agricultural discharges and additional requirements with specific and reasonable time schedules to eliminate or minimize degradation from all agricultural discharges. The Preliminary Draft Agricultural Order also includes clear and direct methods and indicators for verifying compliance and monitoring progress over time.

3.2 Public Input and Consideration of Additional Information

The Preliminary Draft Agricultural Order describes requirements for owners and operators (Dischargers) of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. The requirements described in the Preliminary Draft Agricultural Order were developed by Central Coast Water Board staff based upon information and data available, and public input received to date. At the December 2009 Board Meeting, the Central Coast Water Board invited interested persons to submit any alternative recommendations for regulating agricultural discharges for consideration by Board members and staff. Board members directed interested persons to submit alternative recommendations in writing by April 1, 2010. The Central Coast Water Board will review and consider all alternatives submitted for consistency with: 1) the program goals of resolving surface and groundwater water quality impairment and impacts to aquatic habitat over a reasonable time frame, and including milestones, and monitoring and reporting to verify compliance and measure progress over time; and 2) minimum statutory requirements (including Water Code sections 13263 and 13269 and relevant plans, policies, and regulations identified in Attachment A to the Preliminary Draft Agricultural Order). During the course of reviewing alternatives (including any specific comments on or recommendations for the Preliminary Draft Agricultural Order), Central Coast Water Board staff may modify proposed conditions or identify other feasible conditions, resulting in revisions to the Preliminary Draft Agricultural Order. Interested Persons will have an opportunity to review and provide comments on forthcoming versions of the Agricultural Order (e.g., during informal staff workshops or Board information workshops), and during future public comment periods associated with specific actions to be taken by the Central Coast Water Board (e.g., adoption of new Agricultural Order).

4.0 Water Quality Conditions

4.1 Summary of Surface Water Quality Conditions

Most waterbodies located in or near areas influenced by agriculture in the Central Coast Region have unsafe levels of nutrients, unsafe levels of pesticides/toxicity, and

excessive levels of sediment/turbidity, evidenced by exceedances of surface water quality standards, and poor biological and physical conditions. Most surface waterbodies in agricultural watersheds are not suitable for drinking water, recreation (swimming or fishing), or aquatic life. Surface water quality data shows severe water quality impairment in most areas of the region with only minimal signs of improvement in a few areas.

To develop a comprehensive assessment of surface water quality in agricultural areas throughout the Region, staff evaluated data from the Cooperative Monitoring Program (CMP), the monitoring program established for compliance with the Conditional Waiver, and the Central Coast Water Board's Regional Monitoring Program, the Central Coast Ambient Monitoring Program (CCAMP). The CMP data focused monitoring in problem areas with agricultural sources and CCAMP data focused monitoring in all areas of the Region. Consequently, CMP data are biased toward more agricultural runoff influenced streams. Staff also evaluated (and will continue to evaluate) both sets of data for evidence of trends. Staff also completed an assessment of potential risk to Marine Protected Areas in the nearshore marine environment.

Surface water quality conditions are detailed in Attachment 1 to this staff report and summarized below.

Indicators of Surface Water Quality Impairment-

- Most of the same areas that showed serious contamination from agricultural pollutants five years ago are still seriously contaminated.
- The 2008 Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region (Impaired Waters List) identified surface water impairments for approximately 167 water quality limited segments related to a variety of pollutants (e.g., salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment.
- Agricultural discharges most severely impact surface waterbodies in the lower Salinas and Santa Maria watersheds, both areas of intensive agricultural activity. Evaluated through a multi-metric of water quality, 82 percent of the most degraded sites in the Central Coast Region are in these agricultural areas.
- Nitrate concentrations in areas that are most heavily impacted are not improving in significantly or in any widespread manner and in a number of sites in the lower Salinas and Santa Maria watersheds appear to be getting worse in the last few years (from CCAMP and CMP data) .
- Thirty percent of all sites from CCAMP and CMP have average nitrate concentrations that exceed the drinking water standard, and approximately 57 percent exceed the level necessary to protect aquatic life. Several of these water bodies have average nitrate concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek), the Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek), the

lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain), the lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel), and the Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek).

- Discharges from some agricultural drains have shown toxicity every time the drains are sampled. Researchers collaborating with CCAMP have shown that these toxic discharges can cause toxic effects in river systems that damage benthic invertebrate communities.
- Agricultural use of pyrethroid pesticides in the Central Coast Region and associated toxicity are among the highest in the state. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation (DPR), the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected to be toxic (42 percent), and the highest rate (by three-fold) of active ingredients applied (113 lbs/acre).
- Agricultural discharges contribute to sustained turbidity with many sites heavily influenced by agricultural discharges exceeding 100 NTUs as a median value. Most CCAMP sites have a median turbidity level of under 5 NTUs. Resulting turbidity greatly exceeds levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds.
- Agricultural discharges result in water temperatures that exceed levels that are desirable for salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers.
- Bioassessment data shows that creeks in areas of intensive agricultural activity have impaired benthic communities. Aquatic habitat is often poorly shaded, high in temperature, and has in-stream substrate heavily covered with sediment.
- Several Marine Protected Areas (MPAs) along the Central Coast are at risk of pollution impacts from sediment and water discharges leaving river mouths. Three of the MPAs, Elkhorn Slough, Moro Cojo Slough and Morro Bay, are estuaries that receive runoff into relatively enclosed systems.
- For Moro Cojo Slough and Elkhorn Slough, nitrates, pesticides and toxicity are documented problems. These two watersheds have more intense irrigated agricultural activity than does the Morro Bay watershed.

Indicators of Surface Water Quality Improvement -

- Some drainages in the Santa Barbara area are improving in surface water quality (such as Bell Creek, which supports agricultural activities) and on Pacheco Creek in the Pajaro watershed. In the lower Salinas and Santa Maria watersheds, flow volumes are declining at some sites, so at these locations nitrate loads may not necessarily be getting worse in spite of trends in concentrations;
- Dry season flow volume appears to be declining in some areas of intensive agriculture;

- Detailed flow analysis by the CMP showed that 18 of 27 sites in the lower Salinas and Santa Maria watersheds had statistically significant decreases in dry season flow over the first five years of the program;
- Two sites in the lower Santa Maria area show significant improvements in nitrate concentration (Green Valley Creek (312GVS) and Oso Flaco Creek (312OFC);
- Four sites on the main stem of the Salinas River show improvements in turbidity during the dry season;
- Dry season turbidity is improving along a portion of the main stem of the Salinas River;
- CCAMP monitoring has detected declining flows at other sites elsewhere in the Region, likely because of drought;

Surface Water Quality Data and Information Gaps -

- The timeframe and frequency of data collection limit the evaluation of statistical trends for some water quality parameters in surface waterbodies;
- Flow data are not collected at all sites, making it difficult to identify patterns or trends in flow and loading of pollutants (compared to changes in concentration);
- Flow information and water quality data are not reported for agricultural discharges from individual farms, so correlations cannot be made between reductions in irrigation runoff or improvements in agricultural discharge quality vs. in-stream changes.
- In-stream water quality is an effective long-term measure of water quality improvement (especially for nutrients), and more time may be necessary to identify any significant change.
- There is no individual on-farm monitoring or reporting, and it is unknown how individual farms contribute to surface water quality improvement or impairment. In addition, it is unknown if individual Dischargers are in compliance with water quality standards (given the magnitude and scale of documented impacts, it is highly likely that most discharges are not in compliance).
- In Marine Protected Areas, there is no monitoring of sediments that carry pesticides in attached forms. Without this information it is difficult to determine if these pesticides, carried downstream in streamflow by sediments and discharged to the ocean, harm marine life.
- Additional research would increase understanding of the potential impacts of nutrient discharges in rivers in local ocean waters.

4.2 Groundwater Quality

Groundwater is severely impaired by nitrate contamination in many areas of the Central Coast Region. In many areas, nitrate concentration in groundwater is orders of magnitude above the drinking water standard, resulting in a significant threat to public health. This problem is critically important because much of the Central Coast Region is almost completely dependent on groundwater resources.

To develop a comprehensive assessment of groundwater quality in agricultural areas throughout the Region, staff evaluated available groundwater data collected by the California Department of Water Resources, California Department of Public Health (CDPH), Monterey County Water Resources Agency, and other researchers. Groundwater quality data generally represents conditions at the groundwater basin and sub-basin scale, and in particular, comprehensive impacts of agricultural land uses over a broad scale. Groundwater quality data for the purposes of characterizing specific individual agricultural discharges are not available and collection of this type of groundwater data is not required in the 2004 Conditional Waiver.

Groundwater quality conditions are detailed in Attachment 1 to this staff report and summarized below.

Indicators of Groundwater Quality Impairment -

- Groundwater contamination from nitrate severely impacts public drinking water supplies in the Central Coast Region. A Department of Water Resources (DWR) survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast Region found that 17 percent of the wells (121 wells) detected a constituent at concentrations above one or more drinking water standards or primary maximum contaminant levels (MCLs). Nitrate caused the most frequent MCL exceedances (45 mg/L nitrate as nitrate or 10 mg/L nitrate as nitrogen), with approximately 9 percent of the wells (64 wells) exceeding the MCL for nitrate. According to data maintained in the GAMA-Geotracker database, recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells impacted) and Santa Maria groundwater (approximately 17 percent) basins. In the Gilroy-Hollister Groundwater Basin, 11 percent are impacted, and the CDPH identified over half of the drinking water supply wells as vulnerable to discharges from agricultural-related activities. Due to these elevated concentrations of nitrate in groundwater, many public water supply systems are required to provide wellhead treatment, at significant cost, to remove nitrate before delivery to the drinking water consumer.
- Groundwater contamination from nitrate severely impacts shallow domestic drinking water supplies in the Central Coast Region. Domestic wells (wells supplying one to several households) are typically screened in shallower zones than public supply wells, and typically have higher nitrate concentrations as a result. Water quality monitoring of domestic wells is not generally required and water quality information is not readily available, however based on the limited data available, the number of domestic wells that exceed the nitrate drinking water standard is likely in the range of hundreds to thousands in the Central Coast Region.
- In Monterey County, 25 percent of 352 wells sampled (88 wells) had concentrations above the nitrate drinking water standard in the northern Salinas Valley. In portions of the Salinas Valley, up to approximately 50 percent of the wells surveyed had concentrations above the nitrate drinking water standard, with average concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water

standard. Nitrate exceedences in the Gilroy-Hollister and Pajaro groundwater basins are similar, as reported by local agencies/districts for those basins.

- In many cases, whole communities relying on groundwater for drinking water purposes are affected. Local agencies have reported the shut down of domestic drinking water wells due to high nitrate concentrations. In addition, local agencies and consumers have reported impacts to human health resulting from nitrate contaminated groundwater likely due to agricultural land uses, and spent significant financial resources to ensure proper drinking water treatment and reliable sources of quality drinking water for the long-term. In the Central Coast Region, the Monterey County community of San Jerardo, the San Martin area of Santa Clara County, and the City of Morro Bay are among the local communities affected by nitrate.

Groundwater Quality Data and Information Gaps -

- Groundwater quality (especially in deeper parts of the aquifer) is an effective long-term measure of water quality improvement and long time periods are usually necessary to identify significant change in water quality.
- Shallow groundwater is generally more directly susceptible to pollution from overlying land use. Groundwater quality data collection from shallow wells (especially agricultural or domestic drinking water wells) is not required and data is only broadly available, thus limiting evaluations related to shorter term indications of water quality changes.
- Well construction data (e.g., depth and screened intervals) are generally available for public supply wells but are otherwise not collected on a broad scale in a common format. This data gap limits more precise evaluations of water quality and groundwater depth.
- Groundwater data from wells associated with individual farms or areas of intensive agriculture are not routinely collected, nor have data been collected for all such areas in the region. This data gap limits understanding of chemical contributions from individual farms or areas to the levels of chemicals found in groundwater wells.

4.3 Aquatic Habitat Conditions

Aquatic habitat is degraded in many areas of the region as evidenced by poor biological and physical conditions. Most surface waterbodies in agricultural watersheds are not suitable for safe recreational fishing or to support aquatic life.

To determine aquatic habitat conditions, staff reviewed data collected by CMP and CCAMP, and conducted a review of available riparian and wetland information for the Central Coast Region. While the 2004 Conditional Waiver did not specifically require aquatic habitat monitoring, it stated that cooperative monitoring of in-stream effects would enable the Central Coast Water Board to assess the overall impact of agricultural discharges to beneficial uses, such as aquatic life and habitat. The 2004 Conditional Waiver also requires protection of beneficial uses including aquatic and wildlife habitat.

The proposed 2010 order continues that requirement.

Aquatic habitat conditions are detailed in Attachment 1 to this staff report and summarized below.

Indicators of Aquatic Habitat Degradation -

- Agricultural activities result in the alteration of riparian and wetland areas, and continue to degrade the waters of the State and associated beneficial uses. Owners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops and in many areas continue to do so.
- As a result of aquatic habitat degradation, watershed functions that serve to maintain high water quality, aquatic habitat and wildlife - by filtering pollutants, recharging aquifers, providing flood storage capacity, have been disrupted.
- Data collected from CCAMP and CMP indicate that population characteristics of aquatic insects (benthic macroinvertebrates) important to ecological systems reflect poor water quality, degradation or lack of aquatic habitat, and poor overall watershed health at sites in areas with heavy agricultural land use. Aquatic habitat is often poorly shaded, high in temperature, and stream bottoms are heavily covered with sediment.
- The lower Salinas watershed and lower Santa Maria watersheds score low for common measures of benthic macroinvertebrate community health and aquatic habitat health.
- Unstable, bare dirt and tilled soils, highly vulnerable to erosion and stormwater runoff, are common directly adjacent to surface waterbodies in agricultural areas. Erosion and stormwater runoff from agricultural lands contributes sediment and sustained turbidity at levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds.
- Degradation of aquatic habitat also results in water temperatures that exceed levels that are desirable for salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers.
- Real and/or perceived incompatible demands between food safety and environmental protection and subsequent actions taken by Dischargers to address food safety concerns associated with environmental features have resulted in the removal of aquatic habitat and related management practices.
- According to a Spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management practices removed.

Indicators of Aquatic Habitat Improvement -

- Protection, restoration and enhancement of aquatic habitat and watershed functions are demonstrated to be effective for improving water quality, aquatic and wildlife habitat, aquifer recharge, and flood storage capacity.
- Grant-funded projects in the Gabilan Watershed and surrounding Southern Monterey Bay Watersheds demonstrate that wetland restoration results in improved aquatic habitat conditions measured by changes in populations of native plants and birds, and establishment of macroinvertebrate populations. Restoration projects also resulted in water quality improvement by reducing sediment loads, removing large fractions of nitrate and suspended sediment inputs, and removal of ammonia, phosphate, and diazinon.
- Restoration projects implemented in the Moro Cojo Slough indicated that agricultural runoff that ran through wetland habitats can result in greatly reduced levels of nitrate. In addition, restoration resulted in better support of native plants and animals. Greater than 40 native plant species and 22 native vertebrates were observed throughout the project sites. In addition, the following protected species were documented throughout the Moro Cojo Watershed: California Red-legged Frog, California Tiger Salamander, Steelhead, Santa Cruz Long-toed Salamander, Tidewater Goby, and Saline Clover.
- Restoration projects in the Hansen Slough area near Watsonville resulted in decreases in stream turbidity by more than 50-fold, comparing sites above and below restoration. Nitrate concentrations also decreased as water passed through the restoration area – nitrate concentrations entering the site exceeded 140 mg/L and levels leaving the site never exceeded 40 mg/L, and were frequently below 5 mg/L.

Aquatic Habitat Data and Information Gaps -

- The success of aquatic habitat protection and restoration efforts is dependent on a variety of different parameters including scale, climate, topography, flow, water quality, and other site-specific variables.

4.4 Agricultural Discharge Water Quality

Water quality of agricultural discharges is often poor, carrying nitrates at concentrations above safe drinking water levels and pesticides at concentrations above toxic levels to waterbodies in the region. Agricultural discharges contribute significantly to water quality conditions. In some cases, agricultural discharges are the sole or primary source of pollution in impaired waterbodies. Even in areas where agricultural is not the only source of pollution, it is a primary contributor.

Numerous studies document the impact of agricultural discharges on water quality and specific pollutants contained in irrigation runoff. Research conducted by the Food and Agriculture Organization of the United Nations found that irrigation return flow resulted in a significant increase in nitrogen, phosphorous, pesticide residues, and sediments.

Agricultural research conducted by University of California Cooperative Extension (UCCE) found nitrate values in agricultural tailwater at 26, 53, and 75 mg/L NO3-N (up to 7.5 times the drinking water standard). UCCE researchers indicated that the high levels of nitrate at the site were likely caused by the grower injecting nitrogen fertilizer into the irrigation water during the 2nd and 3rd irrigation events. A UC Davis study of Salinas Valley farms found that by the second and third crop cycles, farm soils had begun to accumulate nitrogen, but that growers continued with the same fertilization schedule. In addition, soils are high enough in phosphorus that in some areas no added phosphorus is necessary; however, growers continue to add this chemical to their fields. These practices lead to excess fertilizer leaving the farm, which ultimately cause significant water quality impairment. Similar to tailwater, tile drain water with elevated nitrate levels has been found draining into surface water bodies. Nitrate concentrations in selected waterbodies in the Pajaro Valley Watershed have been found to range from 19 to 89.5 mg/l NO3 as N(compared to the drinking water standard, 10 mg/l).

Pesticides have been detected in agricultural tailwater and routinely exceed the toxicity water quality standard (lethal to aquatic life). Regionwide, CCAMP and the Cooperative Monitoring Program have conducted toxicity monitoring in 80 streams and rivers. Some measure of lethal effect (as opposed to growth or reproduction effect) has been observed at 65 percent of the water bodies monitored.

5.0 Preliminary Draft Staff Recommendations for an Agricultural Order

5.1 Background on Agricultural Regulatory Program Implementation (2004 – 2009)

On July 9, 2004, the Central Coast Water Board unanimously adopted the 2004 Conditional Waiver, and the associated Monitoring and Reporting Program, with the support of an Agricultural Advisory Panel (including agricultural and environmental interest group representatives), and overall public support. The goal of the 2004 Conditional Waiver was to improve agricultural water quality through the implementation of appropriate management practices. The requirements of the 2004 Conditional Waiver focused on enrollment, education and outreach, development of Farm Water Quality Management Plans (Farm Plans), and cooperative water quality monitoring.

During the term of the 2004 Conditional Waiver, Water Board staff worked with the agriculture community to develop an Agricultural Regulatory Program that would progress to protect and restore surface water quality, groundwater quality, and aquatic habitat to conditions that protect all designated beneficial uses of water in areas with irrigated agricultural lands. Major programmatic accomplishments of the first five years include the following:

- Enrollment of approximately 90 percent of the Central Coast Region's total irrigated agricultural acreage under the 2004 Conditional Waiver;

- Development and Implementation of a region-wide monitoring program (CMP) to assess water quality conditions at the watershed-scale;
- Tracking program implementation for more than 1700 farming operations (including inspections at 59 farming operations, and various enforcement actions: more than 200 Notices of Violation, more than 20 water quality enforcement actions, and five Administrative Civil Liability complaints);
- Discharger development of Farm Water Quality Management Plans for over 1528 operations (72 percent of enrollees); and
- Discharger completion of water quality education courses (in total, more than 18,000 hours);

While the success of initial efforts of the Agricultural Regulatory Program to develop a Conditional Waiver with stakeholders and achieve enrollment through education and outreach is significant, the current Conditional Waiver lacks clarity and focus on water quality requirements and does not include adequate compliance and verification monitoring. Thus, desired water quality outcomes achievement is uncertain and unmeasured. At a minimum, agricultural discharges continue to severely impact water quality in most receiving waters. The Central Coast Water Board must determine how better to regulate agricultural discharges on the Central Coast to directly address the major water quality issues of toxicity, nitrates, pesticides and sediment in agricultural runoff and/or leaching to groundwater to achieve desired water quality outcomes that support all beneficial uses.

5.2 Preliminary Draft Agricultural Order – Summary of Staff Proposed Conditions

Conditions in the Preliminary Draft Agricultural Order and changes related to the 2004 Conditional Waiver are summarized in Attachment 2 and the Preliminary Draft Agricultural Order is contained in Attachment 3. Conditions in the Preliminary Draft Agricultural Order that are a clarification of conditions in the 2004 Conditional Waiver are notated as "<CLARIFICATION OF EXISTING>" in the Preliminary Draft Agricultural Order, Attachment B, Terms and Conditions. -. Conditions in the Preliminary Draft Agricultural Order that do not exist in the 2004 Conditional Waiver are notated as "<NEW>". Conditions in the Preliminary Draft Agricultural Order without a notation are the same as conditions contained in the 2004 Conditional Waiver.

Staff developed these preliminary recommendations for an Agricultural Order by building upon the 2004 Conditional Waiver to advance efforts to improve agricultural water quality and gain compliance with applicable water quality standards. Thus, staff recommends the same regulatory tool, a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, to regulate agricultural discharges. To ensure understanding of applicable water quality standards, staff included explicit clarification of water quality discharge and compliance requirements. In addition, to improve implementation actions directly addressing the specific priority water quality issues, the Preliminary Draft Agricultural Order builds upon the development and

implementation of Farm Plans, including effective implementation of management practices (related to irrigation, nutrient, pesticide and sediment management) that will most likely yield the greatest amount of water quality protection. The Preliminary Draft Agricultural Order also builds upon the existing Cooperative Monitoring Program by retaining watershed-scale, receiving water monitoring, but adds individual monitoring and reporting to improve Water Board staff's ability to identify specific discharges loading pollutants or contributing to impacts, verify compliance with the requirements by dischargers and measure progress over time at the farm and watershed scales. The Preliminary Draft Agricultural Order focuses on reducing or eliminating agricultural discharges – especially contaminated irrigation runoff and percolation to groundwater in the most severely impaired areas. Due to the unique conditions related to irrigated lands and individual farming operations, the Preliminary Draft Agricultural Order includes multiple options for compliance to maximize Dischargers' flexibility in achieving desired water quality improvement according to a specific time schedule and specific milestones. Similar to the 2004 Conditional Waiver, the Preliminary Draft Agricultural Order also includes significantly reduced monitoring and reporting requirements for those agricultural discharges identified as having relatively low-risk for water quality impairment. The conditions for compliance, the monitoring and reporting requirements and the time schedule for compliance are summarized in the following paragraphs.

To demonstrate compliance with this Order, Dischargers must:

- Enroll to be covered by the Order
- Develop and implement a farm plan that includes management practices with certain conditions and specifications
- Eliminate non-storm water discharges, or use source control or treatment such that non-storm water discharges meet water quality standards
- Demonstrate through water quality monitoring that individual discharges meet certain basic water quality targets (that are or indicate water quality standards that protect beneficial uses). For example, non-storm water discharge monitoring should find:
    - No toxicity
    - Nitrate ≤ 10 mg/L NO3 (N)
    - Turbidity ≤ 25 NTUs
    - Un-ionized Ammonia < 0.025 mg/L (N)
    - Temperature ≤ 68°F
- Demonstrate through water quality monitoring that receiving water is trending toward water quality standards that protect beneficial uses or is being maintained at existing levels for high quality water
- Farm operation must support a functional riparian system and associated beneficial uses (e.g., recreational uses like swimming, wading, or kayaking, fishing, wildlife habitat, etc.)

5.3 Preliminary Draft Monitoring and Reporting Requirements

Water quality monitoring for the Preliminary Draft Agricultural Order is required by California Water Code Section 13269. Monitoring requirements are designed to support the implementation of the Preliminary Draft Agricultural Order (specifically as a Conditional Waiver of Waste Discharges). Monitoring must verify the adequacy and effectiveness of the Order's conditions. Monitoring information and data must be reported to the Water Board. The reporting requirements that staff recommends with the Preliminary Draft Agricultural Order include all farm operations to report on management practice implementation at the time of enrollment, to report on management practices at least once during the period of the Order, to update their farm plans annually with monitoring and site evaluation results, and to update their plans annually with specific adjustments in response to any results that indicate unacceptable progress (e.g., do not meet interim milestones set forth in the Order).

The current monitoring program for the 2004 Conditional Waiver uses a third party for meeting all monitoring and reporting requirements (Preservation, Inc., the nonprofit organization that implements the Cooperative Monitoring Program). Under the current monitoring and reporting program, Dischargers are responsible for monitoring and reporting either individually or collectively, and they must comply with the requirements of the Board-approved Monitoring and Reporting Program. The preliminary draft monitoring and reporting requirements provide for Dischargers to continue to use a third party as long as the third party is approved by the Executive Officer.

The existing monitoring program does not collect sufficient information regarding:

- Groundwater quality
- Pollution source identification
- Individual compliance
- Terrestrial riparian conditions

To address the critical need for additional data for groundwater quality, source identification, source control and/or compliance and riparian condition, Water Board Staff considered various monitoring options.

In the Preliminary Draft Agricultural Order, Water Board staff recommends a monitoring program that requires four categories of monitoring: Individual Discharge Characterization Monitoring, Individual Discharge Monitoring, Watershed (receiving water) Monitoring, and Additional Monitoring if required by the Executive Officer (receiving water and/or discharge). Staff recommends this monitoring program because it:

- Addresses all surface water (tailwater, tile drain water, stormwater, etc) and groundwater
- Provides complete identification of individual operations responsible for discharge
- Allows for immediate management of known discharges with the potential to impact water quality

- Limits costs for farms that are in compliance
- Prioritizes further regulatory action on farms that are not progressing toward compliance
- Uniformly distributes costs for trend and stormwater monitoring across all growers resulting in similar costs for all growers based on acreage farmed
- Provides data for surface and groundwater trends, individual compliance, management practice implementation, riparian protection, and stormwater
- Allows data collection, analysis, and reporting to be performed by a non-regulatory single third party
- Provides follow up monitoring to identify and mitigate known discharges with the potential to impact water quality

The following paragraphs describe each of the four categories of monitoring recommended.

Individual Discharge Characterization Monitoring-
To establish the need for one time and/or continuous monitoring at an individual farm operation, farm operations (Dischargers) will be required to evaluate their farms individually. The first step under this option is a requirement that all farm operations conduct an "individual discharge characterization" of their farm operation. The characterization will require a farm operation to identify if they have non-stormwater discharge(s) to either surface or ground water. Examples of non-stormwater discharges include agriculture tailwater, irrigation runoff, tile drain water, pond water discharge, ponded furrows, and/or another intermittent agriculture water discharge.

If a farm operation verifies that it does not have any non-stormwater discharge, that farm operation is not required to conduct any individual discharge water quality monitoring. Each operation without an identified non-stormwater discharge must conduct watershed monitoring for stormwater and long-term in-stream trends.

If a farm operation has an identified non-stormwater discharge to either surface or ground water, that discharge must be sampled and analyzed for the following discharge characterization parameters:

- Flow
- Toxicity
- Total Nitrogen (mg/L)
- Nitrate-Nitrite (mg/L)
- Total Ammonia (mg/L)
- Ortho-Phosphosphate (mg/L)
- Turbidity (NTU)
- Water Temperature (degrees C)
- pH
- Total Dissolved Solids (mg/L)

The following parameter must be calculated (based on Ammonia and pH):

- Un-ionized Ammonia (mg/L)

Staff and the discharger will use this information to assess the discharge to surface and/or ground water. If the discharge characterization demonstrates the discharge is impairing or has potential to impair surface and/or groundwater (load pollutants at levels that would cause exceedance of water quality standards to protect beneficial uses), that pollutant discharge must be eliminated, If the discharge flow can not be eliminated, the discharge must be treated or controlled to meet water quality standards to be protective of ground and surface water beneficial uses (within a time-frame specified in the Order), and must be monitored as described under "individual discharge monitoring" below.

Individual Discharge Monitoring-
For a farm operation with continuous discharge(s), the discharge(s) must be monitored until the discharge(s) is terminated or controlled so that it meets water quality standards (within a time frame specified in the Order). Data collected through individual monitoring will be used to verify that individual operations are progressing towards or have succeeded to eliminate or adequately control discharges that are impacting waters of the state and associated beneficial uses. If individual discharge monitoring demonstrates discharges are loading significant amounts of pollutants to receiving waterbodies that are already impaired (exceed water quality standards that protect beneficial uses) or that have water quality conditions at or better than water quality standards currently supporting beneficial uses, the Discharger must use additional source control/pollutant reduction (compliance is defined by time frames specified in the Order).

A third-party monitoring group can fund or perform this monitoring on behalf of individual dischargers. Individual agriculture operations identified through Individual Discharge Characterization or Follow-up monitoring efforts as the source of pollution must implement additional management practices or improve implementation of current practices for the protection of water quality and associated beneficial uses.

If management practice implementation fails to eliminate a source of pollution or bring a discharge in compliance with applicable water quality standards, the Water Board may pursue enforcement to bring the discharge into compliance with water quality standards.

Watershed Monitoring Program-
Sites on main stems of rivers and tributaries in agricultural areas of the region must be monitored on a regular basis to evaluate in-stream stormwater trends and long-term trends in water quality and associated beneficial uses. All Dischargers must conduct watershed monitoring program.

The watershed monitoring program must collect samples at a core network of receiving water sites. For the watershed monitoring component of the monitoring requirements, Dischargers may recommend monitoring sites or constituents to best characterize potential agricultural impacts that the Executive Officer must approve to be effectuated. Similarly, the Executive Officer may require changes to the sites or waste constituents, or other aspects of the watershed monitoring program, to better characterize agricultural

impacts, identify sources of pollution, or better characterize stream water quality (See discussion of Additional Monitoring below).

Surface Water
Representative surface water samples shall be collected and analyzed for the parameters listed in Attachment 4. Also, two stormwater events shall be monitored for the parameters listed in Attachment 4 during the rainy season (October 15 – March 15). Rainy season sampling is typically conducted during or shortly after runoff events, preferably including the first event that results in significant flow increase.

Groundwater
At a minimum, all Dischargers must sample their own irrigation wells and drinking water wells annually. Sampling must include collection and analyses of data for nitrate and TDS, at a minimum.

Additionally, individual Dischargers (or approved third party on their behalf) must develop a plan to monitor groundwater to characterize groundwater quality in agricultural areas including:

- current representative conditions of groundwater quality,
- more specific groundwater quality along general groundwater flow paths (where water is recharged to where it discharges, e.g., into streams or wells), and
- trends in groundwater quality
- impacts to beneficial uses (or protection of beneficial uses).

The proposed groundwater monitoring plan may rely on existing groundwater wells and may include existing monitoring efforts around the region to document groundwater quality. The proposed groundwater monitoring plan must be submitted to the Water Board Executive Officer by March 1, 2012.

To be an acceptable third-party, the monitoring group must:

- Be responsible for implementing monitoring and reporting program.
- Report names of participating dischargers.
- Report any dischargers who cease to comply with requirements.
- Comply with a Quality Assurance Program Plan and monitoring plan approved by the Water Board's quality assurance officer.
- Submit all data (daily, monthly, quarterly, etc.) to the Water Board; the data submission shall conform to criteria approved by the Central Coast Regional Water Quality Control Board Executive Officer.

Additional Monitoring required by the Executive Officer
At the direction of the Water Board Executive Officer, individual Dischargers or an approved third party must conduct Follow up monitoring in areas identified as problematic through Individual Discharge Monitoring, Watershed Monitoring, and the Central Coast Ambient Monitoring Program. This monitoring must be conducted to identify the source of pollution and monitor any identified discharges associated with

agriculture operations to surface or ground water, including discharges to streams, discharges to tail-water ponds, and stormwater runoff.

5.4 Proposed Time Schedule for Compliance

Water Board Staff considered a time schedule that would support timely and effective implementation. Under this Preliminary Draft Agricultural Order, either irrigation runoff will need to be eliminated within two years of adoption of the Order or the following pollutants in irrigation runoff will need to be eliminated and/or treated or controlled to meet applicable water quality standards by the dates specified:

- Toxicity – within two years of adoption of the Order
- Turbidity – within three years of adoption of the Order
- Nutrients – within four years of adoption of the Order
- Salts – within four years of adoption of the Order

Additionally, dischargers must implement management practices to reduce pollutant loading to groundwater.

Staff recommends the time-schedule in this Preliminary Draft Agricultural Order as a reasonable starting point to improve water quality. This schedule acknowledges that to fully control all discharges and achieve compliance will take longer than the five years of this Preliminary Draft Agricultural Order. In a separate, but related effort regarding regulation of agricultural discharges, staff is evaluating and developing a time schedule for actions and to meet interim milestones that extends out to 2025.

6.0 Preliminary Draft Environmental Analysis Pursuant to the California Environmental Quality Act (CEQA)

Consistent with CEQA, staff prepared a preliminary draft environmental impact analysis, currently in the form of an Initial Study, including an environmental checklist. See Attachment 5.

The project evaluated in this Initial Study/Environmental Checklist is the Preliminary Draft Irrigated Ag Order, which is a revised Conditional Waiver of Waste Discharge Requirements and the requirement to submit a report of waste discharge.

The preliminary draft environmental impact analysis contains the following information relating to the Preliminary Draft Irrigated Ag Order:

1. A description of proposed activity and proposed alternatives ,
2. An environmental checklist,
3. An initial evaluation of potentially significant environmental impacts.

7.0 References

Staff consulted several references in preparing the report on water quality conditions and the Preliminary Draft Agricultural Order. A list of those references is included as Attachment 6.

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EXHIBIT I

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

DRAFT
ORDER NO. R3-2011-0006

CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES FROM IRRIGATED LANDS

The California Regional Water Quality Control Board, Central Coast Region finds that:

1. The Central Coast Region has approximately 435,000 acres of irrigated land and approximately 3000 agricultural operations, which may be generating wastewater that falls into the category of discharges of waste from irrigated lands.

2. The Central Coast Region has more than 17,000 miles of surface waters (linear streams/rivers) and approximately 4000 square miles of groundwater basins that are, or may be, affected by discharges of waste from irrigated lands.

3. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) are the principal state agencies with primary responsibility for the coordination and control of water quality pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The legislature, in the Porter-Cologne Act, directed the Water Board to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation, considering precipitation, topography, population, recreation, agriculture, industry, and economic development (Water Code § 13000).

4. On July 9, 2004, the Central Coast Regional Water Quality Control Board (Central Coast Water Board) adopted Resolution No. R3-2004-0117 establishing a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (2004 Agricultural Order). In the 2004 Agricultural Order, the Central Coast Water Board found that the discharge of waste from irrigated lands has impaired and polluted the waters of the State and of the United States within the Central Coast Region, has impaired the beneficial uses, and has caused nuisance. The 2004 Agricultural Order expired on July 9, 2009, and the Central Coast Water Board renewed it for a term of one year until July 10, 2010 (Order No. R3-2009-0050). On July 8, 2010, the Central Coast Water Board renewed the 2004 Agricultural Order again for an additional eight months until March 31, 2011 (Order No. R3-2010-0040).

This updated *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,* Order No. R3-2011-0006 (Order), revises the 2004 Agricultural Order as set forth herein.

5. Since the 2004 Agricultural Order, the Central Coast Water Board has documented substantial empirical data demonstrating that water quality conditions in agricultural areas of the region continue to be severely impaired or polluted by waste discharges from irrigated agricultural operations and activities that impair beneficial uses, including drinking water, and impact aquatic habitat on or near irrigated agricultural operations. The most serious water quality degradation is caused by fertilizer and pesticide use, which results in run off of chemicals from agricultural fields into surface waters and percolation into groundwater. Runoff and percolation includes both irrigation water and stormwater.

6. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the largest primary source of nitrate pollution in drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices[1]. Researchers estimate that tens of millions of pounds of nitrate leach into groundwater in the Salinas Valley alone each year. Studies indicate that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in agricultural areas[2]. Hundreds of drinking water wells serving thousands of people throughout the region have nitrate levels exceeding the drinking water standard[3]. This presents a significant threat to human health as pollution gets substantially worse each year, and the actual number of polluted wells and people affected are unknown. Protecting public health and ensuring safe drinking water is among the highest priorities for this Order.

7. Agricultural use of pesticides in the Central Coast Region and associated toxicity is among the highest in the State[4]. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicate that toxicity resulting from agricultural discharges of pesticides has severely impacted aquatic life in Central Coast streams[5,6,7]. Some agricultural drains have shown toxicity nearly every time the

[1] Carle, S.f., B.K. Esser, J.E. Moran, High-Resolution Simulation of Basin-Scale Nitrate Transport Considering Aquifer System Heterogeneity, Geosphere, June 2006, v.2, no. 4, pg. 195-209.
[2] Monterey County Flood Control and Water Conservation District, "Report of the Ad Hoc Salinas Valley Nitrate Advisory Committee." Zidar, Snow, and Mills. November 1990.
[3] California Department of Public Health Data obtained using GeoTracker GAMA (Groundwater Ambient Monitoring and Assessment) online database, http://geotracker.waterboards.ca.gov/gama/.
[4] Starner, K., J. White, F. Spurlock and K. Kelley. Pyrethroid Insecticides in California Surface Waters and Bed Sediments: Concentrations and Estimated Toxicities. California Department of Pesticide Regulation. 2006.
[5] Anderson, B.S., J.W. Hunt, B.M. Phillips, P.A. Nicely, V. De Vlaming, V. Connor, N. Richard, R.S. Tjeerdema. Integrated assessment of the impacts of agricultural drainwater in the Salinas River (California, USA). Environmental Pollution 124, 523 - 532. 2003.

drains are sampled. Twenty-two sites in the region - 13 of which are located in the lower Salinas/Tembladero watershed area, and the remainder in the lower Santa Maria area – have been toxic in 95% (215) of the 227 samples evaluated.

8. Existing and potential water quality impairment from agricultural discharges takes on added significance and urgency, given the impacts on public health, limited sources of drinking water supplies and proximity of the region's agricultural lands to critical habitat for species of concern.

9. This Order regulates discharges of waste[8] from irrigated lands by requiring Dischargers to comply with the terms and conditions set forth herein to ensure that such discharges do not cause or contribute to the exceedance of any Regional, State, or Federal numeric or narrative water quality standard (hereafter referred to as exceedance of water quality standards) in waters of the State and of the United States.

10. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to meet water quality standards and achieve compliance with this Order.

11. Many owners and operators of irrigated lands within the Central Coast Region have taken actions to protect water quality. In compliance with the 2004 Agricultural Order, most Dischargers enrolled in the 2004 Agricultural Order, implemented the Cooperative Monitoring Program (CMP), participated in farm water quality education, developed farm water quality management plans and implemented management practices as required in the 2004 Agricultural Order. The 2004 Agricultural Order did not include conditions that allowed for determining the level of effectiveness of actions taken to protect water quality, such as individual discharge monitoring or evaluation of water quality improvements. This Order includes new or revised conditions to allow for such evaluations.

12. Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the State, other than into a community sewer system, shall file with the appropriate Regional Board a report of waste discharge (ROWD) containing such

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[6] Anderson B.S., B.M. Phillips, J.W. Hunt, V. Connor, N. Richard, R.S. Tjeerdema. "Identifying primary stressors impacting macroinvertebrates in the Salinas River (California, USA): Relative effects of pesticides and suspended particles" Environmental Pollution 141(3):402-408. 2006a.

[7] Anderson, B.S., B.M. Phillips, J.W. Hunt, N. Richard, V. Connor, K.R. Worcester, M.S. Adams, R.S. Tjeerdema. Evidence of pesticide impacts in the Santa Maria River Watershed (California, USA). Environmental Toxicology and Chemistry, 25(3):1160 - 1170. 2006b.

[8] This Order regulates discharge of "waste" as defined in Water Code section 13050 and "pollutants" as defined in the Clean Water Act. For simplicity, the term "waste" or "wastes" is used throughout. The term "waste" is very broad and includes "pollutants" as defined in the Clean Water Act.

information and data as may be required by the Central Coast Water Board, unless the Central Coast Water Board waives such requirement.

13. Water Code section 13263 requires the Central Coast Water Board to prescribe waste discharge requirements (WDRs), or waive WDRs, for the discharge. The WDRs must implement relevant water quality control plans and the Water Code.

14. Water Code section 13269(a) provides that the Central Coast Water Board may waive the requirements to submit an ROWD and to obtain WDRs for a specific discharge or specific type of discharge, if the Central Coast Water Board determines that the waiver is consistent with any applicable water quality control plan and such waiver is in the public interest, provided that any such waiver of WDRs is conditional, includes monitoring requirements unless waived, does not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board.

15. As authorized by Water Code section 13269, this Order conditionally waives the requirement to file ROWDs and obtain WDRs for Dischargers who comply with the terms of this Order.

SCOPE OF ORDER NO. R3-2011-0006

Irrigated Lands and Agricultural Discharges Regulated Under this Order

16. This Order regulates (1) discharges of waste from irrigated lands where water is applied for producing commercial crops and includes, but is not limited to, land planted to row, vineyard, field and tree crops; (2) discharges of waste from commercial nurseries, nursery stock production and greenhouse operations with soil floors that do not have point-source type discharges, and are not currently operating under individual WDRs; and (3) discharges of waste from lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops.

17. Discharges from irrigated lands regulated by this Order include discharges of waste to surface water and groundwater, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills. These discharges can contain wastes that could affect the quality of waters of the State and impair beneficial uses.

Dischargers Regulated Under this Order

18. This Order regulates both landowners and operators (Dischargers) of irrigated lands on or from which there are discharges of waste that could affect the quality of any surface water or groundwater. Dischargers are responsible for complying with the conditions of this Order. The Central Coast Water Board will hold both the landowner and the operator liable for noncompliance with this Order.

19. The Central Coast Water Board recognizes that due to different types of operations and/or locations, discharges of waste from irrigated lands may have the potential for different levels of impacts on waters of the state or of the United States. This Order establishes three tiers of regulation to take into account the variation, including different regulatory conditions for the three tiers.

20. Dischargers must submit to the Central Coast Water Board a completed Notice of Intent (NOI) to comply with the conditions of this Order and receive a Notice of Enrollment from the Executive Officer of the Central Coast Water Board to comply with the Water Code.

21. Landowners and operators of irrigated lands who obtain a pesticide use permit from a local County Agricultural Commissioner may have a discharge of waste that could affect surface water and groundwater and therefore must submit to the Central Coast Water Board a completed NOI to comply with the conditions of this Order and receive a Notice of Enrollment from the Executive Officer of the Central Coast Water Board to be in compliance with the Water Code.

Agricultural Discharges Not Covered Under this Order and Who Must Apply for Individual Waste Discharge Requirements

22. This Order does not waive WDRs for commercial nurseries, nursery stock production and greenhouse operations that have point-source type discharges, and fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors). These operations must eliminate all such discharges of wastes or submit a ROWD to apply for individual WDRs as set forth in Water Code section 13260 .

PUBLIC PARTICIPATION PROCESS

23. The Central Coast Water Board notified interested persons that the Central Coast Water Board will consider the adoption of this Order, which conditionally waives individual WDRs and establishes conditions for the control of discharges of waste

from irrigated lands to waters of the State, and provided several opportunities for public input.

24. In December 2008, the Central Coast Water Board invited members of the public to participate in development of this Order and provide recommendations to Central Coast Water Board staff. In particular, the Central Water Board requested the assistance of an Agricultural Advisory Panel in developing appropriate milestones, timetables, and verification monitoring programs to resolve water quality problems and achieve compliance with the Basin Plan. Additionally, in early 2009, the Central Coast Water Board notified all water purveyors, water districts and municipalities that staff was developing recommendations for this Order.

25. In December 2009, the Central Coast Water Board encouraged any interested person who wanted to present alternative recommendations to this Order to provide those recommendations in writing by April 1, 2010.

26. On February 1, 2010, the Central Coast Water Board publicly released a preliminary report and preliminary draft order for the regulation of discharges from irrigated lands and accepted comments on the preliminary draft order through June 4, 2010.

27. The Central Coast Water Board held two public workshops (May 12, 2010 and July 8, 2010) to discuss the preliminary draft order, public comments, and alternative recommendations.

28. Interested persons were notified that the Central Coast Water Board will consider adoption of an Order, which conditionally waives WDRs for discharges of waste from irrigated lands, as described in this Order, and were provided an opportunity for a public hearing and an opportunity to submit written comments.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

29. For purposes of adoption of this Order, the Central Coast Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code §§ 21100 et seq.).

30. In 2004, the Central Coast Water Board adopted the 2004 Agricultural Order and a Negative Declaration prepared in compliance with CEQA. CEQA Guidelines state that no subsequent environmental impact report (SEIR) shall be prepared when an EIR has been certified or negative declaration adopted for a project unless the lead agency determines based on substantial evidence in light of the whole record, one or more of the following:

> *(1) if substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects; or,*
>
> *(2) if substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental impacts or a substantial increase in the severity of previously identified significant effects; or*
>
> *(3) if new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, becomes available.*

(Cal. Code Regs., tit. 14, § 15162(a).)

This regulation applies if there is a modification of a previous project. In this case, the Central Coast Water Board is proposing to renew the 2004 Agricultural Order, which is the previous project, with clarifications and new conditions. The Central Coast Water Board staff reviewed the Negative Declaration prepared for the 2004 Agricultural Order, a revised environmental checklist considering proposed revisions to that Order, comments received on the project including alternatives proposed by interested persons, comments received from agencies, and other information provided in the record. Based on this review, staff concluded that evidence in the record suggested that proposed revisions to the 2004 Agricultural Order could result in an increase in the severity of certain previously identified environmental effects. See Cal. Code Regs, tit. 14, §15162, subd. (a)(1). In particular, members of the public suggested that implementation of some of the proposed new conditions could result in removing land from agricultural use either to install riparian buffer strips or due to financial impacts that make farming not economical. Some public agencies suggested that implementation of some of the proposed new conditions could result in reduced flows in surface water that could impact aquatic habitat. These environmental effects were previously evaluated in the Negative Declaration for the 2004 Agricultural Order and were found at that time not to be significant. Given the new comments, staff prepared an SEIR to evaluate whether there would be potentially significant environmental effects that could result from revisions to the 2004 Agricultural Order. The 2004 Negative Declaration and the SEIR constitute the environmental analysis under CEQA for this Order.

The Board finds that there is not sufficient evidence in the record to conclude whether in fact the potential effects would be more severe than under the 2004 Agricultural Order. Even if the effects could be more severe, they can be mitigated due to actions by

dischargers. The adoption of this Order is necessary to assure compliance with the Porter-Cologne Water Quality Control Act and associated plans, such as the Central Coast Water Board's Basin Plan and the State Water Resources Control Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program.

31. <Reserved for CEQA description. This section may be revised in compliance with CEQA requirements.>

ADDITIONAL FINDINGS

32. Attachment A to this Order, incorporated herein, includes additional findings that further describe a) the Water Board's legal and regulatory authority, b) the rationale for this Order, c) a description of the environmental and agricultural resources in the Central Coast Region, and d) impacts to water quality from agricultural discharges. Attachment A also identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory requirements that apply to the discharge of waste from irrigated lands. Attachment A also includes definitions of terms for purposes of this Order.

IT IS HEREBY ORDERED that:

1. Pursuant to Water Code sections 13263, 13267, and 13269, Dischargers must comply with the terms and conditions of this Order to meet the provisions contained in Water Code Division 7 and regulations and plans and policies adopted there under.

2. This Order shall not create a vested right to discharge, and all discharges of waste are a privilege, not a right, as provided for in Water Code section 13263(g).

3. Dischargers must not discharge any waste not specifically regulated by this Order except in compliance with the Water Code.

4. Pursuant to Water Code section 13269, the Central Coast Water Board waives the requirement for Dischargers to submit an ROWD pursuant to Water Code section 13260 and to obtain WDRs pursuant to Water Code section 13263(a) for discharges of waste from irrigated lands, if the Discharger enrolls in and complies with this Order, including Attachments, and Monitoring and Reporting Program (MRP) No. R3-2011-0006.

5. Pursuant to Water Code section 13269, this action waiving the issuance of WDRs for certain specific types of discharges: 1) is conditional; 2) may be terminated by the

Central Coast Water Board at any time; 3) may be superseded if the State Water Board or Central Coast Water Board adopts specific WDRs or general WDRs for this type of discharge or any individual discharger; 4) does not permit any illegal activity; 5) does not preclude the need for permits which may be required by other local or governmental agencies; and 6) does not preclude the Central Coast Water Board from requiring WDRs for any individual discharger or from administering enforcement remedies (including civil liability) pursuant to the Water Code.

6. The Executive Officer may propose, and the Water Board may adopt, individual WDRs for any Discharger at any time.

7. The Central Coast Water Board or the Executive Officer may, at any time, terminate applicability of this Order with respect to an individual Discharger upon written notice to the Discharger.

8. Dischargers are defined in this Order as both the landowner and operator of irrigated cropland, and both must comply with this Order. Landowners must ensure that any operator (person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, any lessee or sub lessee) is operating in compliance with this Order.

Part A. Tiers

9. Dischargers must meet conditions of this Order for the appropriate tier that applies to their land and/or their operations. The lowest tier, Tier 1, applies to dischargers who appear to discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who appear to discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States (see Figure 1).

10. **Tier 1** – Applies to all Dischargers who discharge the lowest level of waste or pose the least threat to water quality, and who meet all of the following sets of criteria **(1a), (1b), and (1c)**:

    1a. Discharger does not use chlorpyrifos or diazinon which are known to contribute to toxicity of surface waters in the Central Coast region;

    1b. Operation is not located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, or sediment on the Clean Water Act section

303(d) 2010 List of Impaired Waterbodies (hereafter referred to as 2010 List of Impaired Waterbodies);

1c. If the Discharger grows crop types with high potential to discharge nitrogen to groundwater, including: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (Napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), parsley, pepper (fruiting), spinach, and strawberry, then the operation total irrigated acreage must be *less than* 1000 acres*;*

11. **Tier 2** – Applies to all Dischargers who discharge a moderate level of waste or pose a moderate threat to water quality, do not meet the Tier 1 or Tier 3 criteria, and meet one the following sets of criteria **(2a), (2b), or (2c)**:

2a. Operation is located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, or sediment on the 2010 List of Impaired Waterbodies; and

Operation total irrigated acreage is *less than* 1000 acres; and

Discharger does not use chlorpyrifos or diazinon.

2b. Operation is not located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, or sediment on the 2010 List of Impaired Waterbodies; and

Operation total irrigated acreage is *less than* 1000 acres; and

Discharger uses chlorpyrifos or diazinon.

2c. Operation is not located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, or sediment on the 2010 List of Impaired Waterbodies; and

Operation total irrigated acreage is *greater than or equal to* 1000 acres; and

Discharger does not grow crop types with high potential to discharge nitrogen to groundwater, including: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (Napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), parsley, pepper (fruiting), spinach, and strawberry; and

Discharger does not use chlorpyrifos or diazinon.

12. **Tier 3** – Applies to all Dischargers who discharge a high level of waste or pose the highest threat to water quality, and meet one the following sets of criteria ***(3a) or (3b)***:

    3a. Discharger operates total irrigated acreage greater than or equal to 1000 acres; and either of the following:

        Discharger grows crop types with high potential to discharge nitrogen to groundwater, including: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (Napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), parsley, pepper (fruiting), spinach, and strawberry; *or*

        Discharger applies chlorpyrifos or diazinon, which contribute to toxicity of surface waters in the Central Coast region.

    3b. Operation is adjacent to or contains a waterbody listed for toxicity or pesticides on the 2010 List of Impaired Waterbodies (Table 3); *and* Discharger applies chlorpyrifos or diazinon.

13. Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier that must provide information to demonstrate they meet the criteria of the lower tier. Dischargers remain in the tier determined by the criteria above, and must meet all conditions for that tier until the Executive Officer approves the request to transfer to a lower tier.

14. The Executive Officer may elevate Tier 1 or Tier 2 Dischargers to a higher tier, if the Executive Officer finds that the Discharger poses a higher threat.

15. The Executive Officer may require Dischargers to enroll irrigated land with similar characteristics (e.g., same landowner or operator) and proximal/adjacent/contiguous location, as a single operation or farm/ranch.

16. Unless otherwise specified, the conditions of this Order apply to all Dischargers, including Tier 1, Tier 2, and Tier 3. Figure 1 illustrates a flowchart of the tiered discharge criteria.

Part B. Discharge Prohibitions that Apply to All Dischargers

17. The discharge of waste that causes or has a reasonable potential to cause, or contribute to an exceedance of water quality standards in waters of the State is prohibited.

18. The discharge of waste that creates conditions of pollution or nuisance as defined in Water Code sections 13050(l) and 13050(m) is prohibited.

19. The discharge of any waste not specifically regulated by the Order described herein is prohibited under this Order. To discharge waste not specifically regulated by this Order, the Discharger must comply with Water Code section 13260(a) by submitting a report of waste discharge and the Central Coast Water Board either issues WDRs pursuant to Water Code section 13263 or an individual waiver pursuant to Water Code section13269, or the conditions specified in Water Code section 13264(a) must be met by the Discharger.

20. The discharge of any waste at a location or in a manner different from that described in the approved Notice of Intent (NOI) is prohibited.

21. The discharge of waste to groundwater with the beneficial use of municipal or domestic water supply that causes or contributes to an exceedance of drinking water standards established by the United States Environmental Protection Agency (USEPA) or California Department of Public Health (CDPH), whichever is more stringent, is prohibited.

22. The application of fertilizer such that it results in a discharge of waste to groundwater, and causes or contributes to exceedances of water quality standards is prohibited.

23. The discharge of chemicals such as fertilizers, fumigants or pesticides down a groundwater well casing is prohibited.

24. The discharge of chemicals used to control wildlife (such as bait traps or poison) into surface waters, or at any place where the chemicals may contact or may eventually be discharged to surface waters is prohibited.

25. The presence of bare soil vulnerable to erosion such that it results in a discharge of waste and causes or contributes to exceedances of water quality standards in waters of the State is prohibited.

26. The discharge of agricultural rubbish, refuse, irrigation tubing or tape, or other solid wastes into surface waters, or at any place where they may contact or may eventually be discharged to surface waters, is prohibited.

27. The discharge of pollutants from point sources to waters of the United States where the Discharger is required to obtain an NPDES permit under Clean Water Act Sections 301, 402 is prohibited.

28. The discharge of pollutants to waters of the United States, including wetlands, where the Discharger is required to obtain a dredge and fill permit under Clean Water Act section 404 is prohibited. An area is considered a wetland if it meets the United States Army Corps of Engineers' definition as described in the Code of Federal Regulations and associated wetland delineation procedures, or relevant Water Board definitions.

Part C. General Conditions and Provisions for All Dischargers - Tier 1, Tier 2, and Tier 3

29. Dischargers must comply with the Central Coast Region Water Quality Control Plan (Basin Plan) and all other applicable water quality control plans as identified in Attachment A.

30. Dischargers must not cause or contribute to exceedances of water quality standards in waters of the State or United States, or cause or contribute to conditions of pollution or nuisance as defined in Water Code section13050. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

31. Dischargers must ensure that agricultural discharges percolating into groundwater must be of such quality at the point where they enter the ground to assure the protection of all actual or designated beneficial uses of groundwater, including drinking water.

32. Dischargers must comply with applicable Total Maximum Daily Loads (TMDLs), including any plan of implementation for the TMDL, commencing with the effective date or other date for compliance stated in the TMDL. A list of TMDLs adopted by the Central Coast Water Board is available on the Central Coast Water Board website at: http://www.waterboards.ca.gov/centralcoast/water_issues/ programs/ tmdl/index.shtml.

33. Dischargers must take action to comply with the terms and conditions of this Order and improve and protect waters of the State, and must take all reasonable steps to prevent any discharge in violation of this Order.

34. Dischargers who choose to utilize containment structures (such as retention ponds or reservoirs) to achieve treatment or control of the discharge of wastes, must construct and maintain such containment structures to avoid percolation of waste to groundwater that causes or contributes to exceedances of water quality standards, and to avoid surface water overflows that have the potential to impair water quality.

35. Dischargers must implement proper handling, storage, disposal and management of pesticides, fertilizer, and other chemicals to prevent discharge of waste to waters of the State.

36. Dischargers must properly destroy all abandoned groundwater wells, exploration holes or test holes, as defined by Department of Water Resources (DWR) Bulletin 74-81 and revised in 1988, in such a manner that they will not produce water or act as a conduit for mixing or otherwise transfer groundwater or waste constituents between permeable zones or aquifers. Proper well abandonment must be consistent with any applicable DWR requirements or local ordinances. Dischargers must report proper well abandonment in the Annual Compliance Document.

37. Dischargers must comply with any applicable stormwater permit.

38. Dischargers are encouraged to collaborate and coordinate implementation at the local or regional scale to implement water quality protection and treatment strategies to lower costs, maximize effectiveness, and achieve compliance with this Order.

39. Pursuant to Water Code section13267(c), Central Coast Water Board or its authorized representatives may (a) enter upon the Discharger's premises where a regulated operation or activity is located or conducted; (b) inspect or photograph any operation or activity pertinent to this Order, (c) have access to and copy any records pertinent to this Order; and (d) sample or monitor to determine compliance with this Order. The inspection may be made with the consent of the owner or possessor of the facilities, or if consent is withheld, with a duly issued warrant.

40. Pursuant to Water Code section13267, the Executive Officer may require Dischargers to locate (inventory) and conduct sampling of private domestic wells in or near agricultural areas with high nitrate in groundwater and submit technical reports evaluating the sampling results. In addition, in compliance with Water Code section13304, the Central Coast Water Board may require Dischargers to provide alternative water supplies or replacement water service, including wellhead treatment, to affected public water suppliers or private domestic well owners.

41. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code Sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. Sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Dischargers must obtain authorization for an incidental take prior to taking action. Dischargers must be responsible for meeting all requirements of the applicable Endangered Species Act for the discharge authorized by this Order.

42. Dischargers must pay a fee to the State Water Resources Control Board in compliance with the fee schedule contained in Title 23 California Code of Regulations**.**

43. Dischargers must pay any relevant monitoring fees (e.g., Cooperative Monitoring Program) necessary to comply with monitoring and reporting requirements of this Order or comply with monitoring and reporting requirements individually.

Part D. Monitoring Requirements for All Dischargers- Tier 1, Tier 2, and Tier 3

44. Dischargers must sample private domestic and agricultural supply groundwater wells on their operations in compliance with Monitoring and Reporting Program (MRP) No. R3-2011-0006 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.

45. In addition to sampling individual wells on operations, Dischargers are encouraged to participate in regional or local groundwater monitoring efforts conducted as part of existing or anticipated groundwater monitoring programs, including efforts related to regional and local salt and nutrient management plans, integrated regional water management (IRWM) plans, or the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program.

46. Dischargers must conduct receiving water quality monitoring in compliance with MRP No. R3-2011-0006 to a) assess the status of receiving water quality and beneficial use protection in agricultural watersheds, b) evaluate short term patterns and long term trends in receiving water quality, c) evaluate water quality impacts resulting from relevant tile-drain discharges, d) evaluate stormwater quality, and d) evaluate degradation of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat resulting from erosion or agricultural discharges.

47. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the Cooperative Monitoring Program developed for the 2004 Agricultural Order) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct receiving water quality monitoring that achieves the same purpose.

48. Tier 3 Dischargers must conduct individual discharge monitoring in compliance with MRP No. R3-2011-0006

Part E. Submittal of Technical Reports for All Dischargers- Tier 1, Tier 2, Tier 3

49. All technical reports submitted pursuant to this Order are required pursuant to Water Code section 13267. Failure to submit technical reports and/or the attachments in accordance with schedules established by this Order or MRP, or failure to submit a complete technical report (i.e., of sufficient technical quality to be acceptable to the Executive Officer), may subject the Discharger to enforcement action pursuant to Water Code section13268.

Notice of Intent (NOI) to Enroll under the Order for All Dischargers in Tier 1, Tier 2 and Tier 3

50. Dischargers seeking authorization to discharge under this Order must submit a completed NOI to the Central Coast Water Board in compliance with MRP No. R3-2011-0006. Upon review and approval of the NOI, the Executive Officer will issue the Discharger a Notice of Enrollment (NOE).

    a. In the case where an operator may be operating for a period of less than 12 months, the landowner must submit the NOI.

    b. **Within 30 days** of the adoption of this Order, any Discharger who did not enroll in the 2004 Agricultural Order must submit an NOI, unless otherwise directed by the Executive Officer.

    c. **Prior to any discharge or commencement of activities that may cause a discharge,** including land preparation prior to crop production, any Discharger proposing to control or own a new operation that has the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater must submit an NOI.

    d. **Within 30 days,** in the event of any change to operation or ranch/farm information, Dischargers must submit an updated NOI to reflect the change.

e. **Within 30 days**, in the event of a change in control or ownership of an operation or land presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner and operator of the existence of this Order by letter, and forward a copy of the letter to the Executive Officer.

f. **Within 30 days** of acquiring control or ownership of an operation (whichever is longer), any Discharger acquiring control or ownership of an existing operation must submit an NOI.

51. Dischargers must include all the information requested in the NOI, in a format specified by the Executive Officer, including but not limited to the following information:
    a. Identification of each property covered by enrollment,
    b. Landowner(s),
    c. Operator(s),
    d. Contact information,
    e. Location of operation, including specific farm(s)/ranch(es),
    f. Farm/ranch map with discharge locations and groundwater wells identified,
    g. Total and irrigated acreage,
    h. Crop type,
    i. Irrigation type,
    j. Discharge type,
    k. Chemical use,
    l. Presence and location of any perennial, intermittent, or ephemeral streams or riparian or wetland area habitat.

52. Dischargers must include in the NOI, a statement of understanding of the conditions of the Order and MRP signed by the Discharger (landowner or operator). If the operator signs and submits the NOI, the operator must provide a copy of the completed NOI to the landowner(s). Both the landowner and operator are responsible for complying with this Order.

53. Dischargers must identify in the NOI, if they are a Tier 1, Tier 2, or Tier 3 Discharger and provide information in the NOI that allows the Central Coast Water Board to confirm the appropriate tier. For Dischargers who do not provide adequate information for the Water Board to confirm or determine the appropriate Tier, the Executive Officer will place them in Tier 3.

54. Coverage under this Order is not transferable to any person except after submittal of an updated NOI and approval by the Executive Officer.

55. For Dischargers who do not enroll in the Order in a timely manner as specified in this Order, the Executive Officer may require submittal of an ROWD, and the Discharger may be subject to WDRs.

Notice of Termination (NOT) for All Dischargers

56. **Immediately**, if a Discharger wishes to terminate coverage under the Order, the Discharger must submit a completed Notice of Termination (NOT), per MRP No. R3-2011-0006. Termination from coverage is the date specified in the NOT, unless specified otherwise. All discharges, as defined in Attachment A, must cease before the date of termination, and any discharges on or after the date of termination shall be considered in violation of the Order, unless covered by other Waivers of WDRs, General WDRs, or individual WDRs cover the discharge.

Monitoring and General Technical Reports for All Dischargers

57. Dischargers must submit monitoring reports in compliance with MRP No. R3-2011-0006, in a format approved by the Executive Officer, including electronic format.

58. Dischargers, or a third party approved by the Executive Officer, must report water quality data to the Central Coast Water Board that is certified by a State registered professional engineer, registered geologist, State certified laboratory or third-party approved by the Executive Officer. Surface water quality data must be submitted in a format that is compatible with the Central Coast Ambient Monitoring Program (CCAMP), or as directed by the Executive Officer. Groundwater quality data must be submitted in a format compatible with the electronic deliverable format (EDF) used by the State Water Board's Geotracker data management system, or as directed by the Executive Officer.

59. Dischargers must submit technical reports that the Executive Officer may request to determine compliance with this Order as authorized by Water Code section13267.

60. Dischargers or a representative authorized by the Discharger must sign technical reports submitted to comply with the Order. Any person signing a report submitted as required by this Order must make the following certification:

"In compliance with Water Code section *13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

Part F. Pollutant Specific Conditions for All Dischargers- Tier 1, Tier 2 and Tier 3

Pesticides and Toxicity

61. Dischargers must not cause or contribute to exceedances of pesticide and toxicity water quality standards in waters of the State or the United States. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

62. Dischargers must comply with any Department of Pesticide Regulation (DPR) adopted or approved surface water protection requirements.

Nutrients and Salts

63. Dischargers must not cause or contribute to exceedances of nutrient and salt water quality standards in waters of the State or the United States. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

64. **Within three years** from adoption of this Order or enrollment, Dischargers that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system must have functional and properly maintained back flow prevention devices installed at the well or pump to prevent pollution of groundwater or surface water, consistent with any applicable DPR requirements or local ordinances.. Back flow prevention devices used to protect water quality must be those approved by USEPA, DPR, CDPH, or the local public health or water agency.

Sediment, Turbidity, and Temperature

65. Dischargers must not cause or contribute to excursions or exceedances of sediment, turbidity, or temperature water quality standards in waters of the State or the United States. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

66. Dischargers must minimize the presence of bare soil vulnerable to erosion and soil runoff to surface waters to meet turbidity and sediment water quality standards in waters of the State or the United States and achieve compliance with this Order.

67. Dischargers must prevent or minimize discharges of waste to waters of the State and of the United States to protect beneficial uses of existing aquatic habitat (including perennial, intermittent, or ephemeral streams, lakes, and riparian and wetland area habitat or other waterbodies) to achieve compliance with this Order by:

a. Maintaining the following riparian functions: including but not limited to streambank stabilization and erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, and wildlife support;
b. Maintaining naturally occurring mixed vegetative cover (such as trees, shrubs, grasses, as described in NRCS Ecological Site Descriptions or other similar regional biological typologies) in aquatic habitat areas;
c. Implementing a Water Quality Buffer Plan (required for Tier 3 Dischargers);

68. In the case where disturbance of aquatic habitat is necessary for the purposes of water quality improvement or restoration activities, Dischargers must implement appropriate and practicable measures to avoid, minimize, and mitigate erosion and discharges of waste, including impacts to aquatic habitat.

69. Where required by California Fish and Game Code, Dischargers must submit proof of an approved Streambed Alteration Agreement from the California Department of Fish and Game (CDFG) for any work conducted within the bed, bank or channel of a lake or stream, including riparian areas, that has the potential to result in erosion and discharges of waste to waters of the State.

70. Where required by California Forest Practice Rules, Dischargers must submit proof of California Department of Forestry and Fire Protection authorization, and enrollment in the Central Coast Water Board's General Conditional Waiver of WDRs – Timber Harvest Activities in the Central Coast Region, for any commercial harvesting of timber that has the potential to result in erosion and discharges of waste to waters of the State.

71. Dischargers must implement erosion control, sediment, and stormwater management practices in non-cropped areas to protect unpaved roads and other heavy use or bare soil areas from concentrated flows of stormwater.

72. Dischargers are encouraged to coordinate the implementation of stormwater management practices with other Dischargers to maximize water quality protection and reduce costs.

<u>Farm Water Quality Management Plan (Farm Plan) Requirements</u>

73. **Within 18 months** of the adoption of this Order or enrollment, Dischargers must develop and implement a farm water quality management plan (Farm Plan). Farm Plans must:

a. Include a copy of this Order, a copy of the Notice of Intent (NOI) submitted to the Central Coast Water Board and a copy of the Notice of Enrollment (NOE) from

the Executive Officer for reference by operating personnel and inspection by Central Coast Water Board staff.

b. Include a signed statement by the landowner(s), operator(s), and key operating and site management personnel, that they are familiar with this Order and contents of the Farm Plan.
c. Include the date the Farm Plan was last updated.
d. Indicate how water quality data from receiving water quality monitoring, groundwater monitoring and individual discharge monitoring was used to design and implement management practices that will achieve compliance with this Order.
e. Identify actual and potential water quality impacts associated with discharges specific to the agricultural operation(s) and design and implement management practices that will correct the water quality impacts and achieve compliance with this Order.
f. Describe the farm water quality management practices planned and implemented to insure discharges do not cause or contribute to exceedances of water quality standards in receiving waters. This includes, but is not limited to, irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control (including stormwater management), and aquatic habitat protection to achieve compliance with this Order.
g. Include a time schedule for implementation of farm water quality management practices, including a list of farm water quality management practices in progress (identify start date), completed (identify completion date), and planned (identify anticipated start date).
h. Demonstrate that discharges do not cause or contribute to exceedances of water quality standards in waters of the State or the United States by including methods and results to evaluate progress and effectiveness of water quality management practices, treatment or control measures, or changes in farming practices implemented to achieve compliance with this Order.

74. Dischargers must update their Farm Plans at least annually.

<u>Education Requirements</u>

75. Dischargers must obtain appropriate farm water quality education and technical assistance necessary to achieve compliance with this Order.

76. **Within 18 months** of the adoption of this Order or enrollment, Dischargers must complete 15 hours of farm water quality education. Farm water quality education should focus on meeting water quality standards by identifying on-farm water quality issues, implementing pollution prevention strategies and implementing practices designed to protect water quality and resolve water quality issues to achieve compliance with this Order

77. Dischargers must maintain proof of completion of education requirements in the Farm Plan.

Part G. Additional Conditions that Apply to Tier 2 and Tier 3 Dischargers

Photo Monitoring for Tier 2 and Tier 3 Dischargers

78. By **October 1, 2012,** and every three years thereafter, Tier 2 and Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment (identified in Table 1) must conduct photo monitoring per MRP No. R3-2011-0006. Photo monitoring must document the condition of perennial, intermittent, or ephemeral streams and riparian and wetland area habitat, the presence of bare soil vulnerable to erosion, and relevant management practices and/or treatment and control measures implemented to address impairments. Photo documentation must be submitted with Annual Compliance document

Annual Compliance Document for Tier 2 and Tier 3 Dischargers

79. By **October 1, 2012, and annually thereafter**, Tier 2 and Tier 3 Dischargers must submit an Annual Compliance Document that includes all the information requested, in a format specified by the Executive Officer, per MRP No. R3-2011-0006. The purpose of the Annual Compliance Document is to provide up-to-date information to the Central Coast Water Board to assist in the evaluation of threat or impact to water quality from agricultural discharges and evaluate progress towards compliance with this Order, including implementation of management practices, treatment or control measures, or changes in farming practices.

Nitrate Loading Risk Factor Determination

80. Tier 2 and Tier 3 Dischargers must calculate the nitrate loading risk factor for each ranch/farm included in their operation. The nitrate loading risk factor is a measure of the relative risk of loading nitrate to groundwater. Tier 3 Dischargers must determine the nitrate loading risk factor for each ranch/farm using the criteria below, based on the highest risk activity existing at each ranch/farm identified in Table 2.
    a. Nitrate Hazard Index Rating by Crop Type
    b. Irrigation System Type
    c. Irrigation Water Nitrate Concentration

81. Tier 2 and Tier 3 Dischargers may choose to subdivide the ranch/farm into "nitrate loading risk units", based on the variability of ranch/farm conditions for the purposes

of complying with this Order. A nitrate loading risk unit is a subdivided unit of the operation or ranch/farm with different farming conditions (irrigation system type, crop type, nitrate concentration in the irrigation water, etc.). The nitrate loading risk unit may be the total ranch, a number of blocks, or an individual block. If a Discharger chooses to subdivide the ranch/farm into individual nitrate loading risk units, the Discharger must maintain individual record keeping, and conduct monitoring and reporting for each nitrate loading risk unit.

82. Tier 2 and Tier 3 Dischargers must determine the ranch/farm's Nitrate Loading Risk, based on multiplication of the individual nitrate loading risk factors.
    a. LOW - Nitrate loading risk is less than 10;
    b. MODERATE – Nitrate loading risk is between 10 and 15;
    c. HIGH – Nitrate loading risk is more than 15;

83. **By October 1, 2012**, Tier 2 and Tier 3 Dischargers must report the nitrate loading risk factors and overall Nitrate Loading Risk calculated for each ranch/farm or nitrate loading risk unit in the Annual Compliance Document.

84. **Within two years** from adoption of this Order or enrollment, Tier 2 and Tier 3 Dischargers with High Nitrate Loading Risk must record total nitrogen applied per crop, per acre to each farm/ranch or nitrate loading risk unit (in units of nitrogen, in any product, form or concentration) including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water;

85. **By October 1, 2014 and annually thereafter**, Tier 2 and Tier 3 Dischargers with High Nitrate Loading Risk must report total nitrogen applied per crop, per acre to each farm/ranch or nitrate loading risk unit in the Annual Compliance Document.

Part H. Additional Conditions that Apply to Tier 3 Dischargers

86. **Within one year** from adoption of this Order or enrollment, Tier 3 Dischargers with a High Nitrate Loading Risk must determine the typical crop nitrogen uptake for each crop type produced and report the basis for the determination (e.g., developed by commodity or industry group, published agronomic literature, research trials, site specific analysis of dry biomass of crop for the nitrogen concentration). Dischargers must report the typical crop nitrogen uptake in the Annual Compliance Document.

<u>Irrigation and Nutrient Management Plan</u>

87. **Within two years** from adoption of this Order or enrollment, Tier 3 Dischargers with High Nitrate Loading Risk must develop and initiate implementation of an Irrigation

and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similar professional or third-party approved by the Executive Officer. The certification of the INMP must indicate that the relevant expert has reviewed all necessary documentation and testing results, evaluated nutrient balance calculations (total nitrogen applied relative to typical crop nitrogen uptake and nitrogen removed at harvest), evaluated estimated nitrate loading to groundwater, evaluated progress towards nutrient management targets, and conducted field verification to ensure accuracy of reporting.

a. The purpose of the INMP is to budget and manage the nutrients applied to each farm/ranch or nitrate loading risk unit considering all sources of nutrients, crop requirements, soil types, climate, and local conditions in order to minimize nitrate loading to surface water and groundwater in compliance with this Order.

b. As an alternative to the development and implementation of an INMP, Tier 3 Dischargers with High Nitrate Loading Risk may propose an individual discharge groundwater monitoring and reporting program (GMRP) plan for approval by the Executive Officer. The GMRP plan must evaluate waste discharge to groundwater from each ranch/farm or nitrate loading risk unit and assess if the waste discharge is of sufficient quality that it will not cause or contribute to exceedances of any nitrate water quality standards in groundwater.

88. Tier 3 Dischargers with High Nitrate Loading Risk must include the following elements in the INMP:
    a. Proof of INMP certification;
    b. Map locating each farm/ranch or nitrate loading risk unit;
    c. Identification of nitrate loading risk factors and overall Nitrate Loading Risk calculation for each ranch/farm or nitrate loading risk unit;
    d. Identification of crop nitrogen uptake values for use in nutrient balance calculations;
    e. Record keeping of the total nitrogen applied per crop, per acre to each farm/ranch or nitrate loading risk unit (in units of nitrogen, in any product, form or concentration) including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water;
    f. Dischargers must take a nitrogen soil sample prior to planting or seeding the field. The amount of nitrogen remaining in the soil must be accounted for as a source of nitrogen when budgeting, and the soil sample results must be maintained in the INMP.

g. Annual balance of nitrogen applied compared to typical crop nitrogen uptake for each ranch/farm or nitrate loading risk unit (Nitrogen Balance ratio);
h. Annual estimation of nitrogen loading to groundwater and surface water, including subsurface drainage (e.g., tiledrains), from each ranch/farm or nitrate loading risk unit;
i. Identification of irrigation and nutrient management practices in progress (identify start date), completed (identify completion date), and planned (identify anticipated start date) to reduce nitrate loading to groundwater to achieve compliance with this Order.
j. Annual evaluation of reductions in nitrate loading to groundwater resulting from decreased fertilizer use and/or implementation of irrigation and nutrient management practices;
k. Description of methods Discharger will use to verify overall effectiveness of the INMP in protecting groundwater quality and achieving water quality standards for nitrate over time.

89. **By October 1, 2014 and annually thereafter,** Tier 3 Dischargers with High Nitrate Loading Risk must report the following INMP elements in the Annual Compliance Document:
    a. Identification of crop nitrogen uptake values for use in nutrient balance calculations;
    b. Annual total of nitrogen units applied per crop, per acre to each farm/ranch or nitrate loading risk unit.
    c. Annual balance of nitrogen applied per crop compared to typical crop nitrogen uptake for each ranch/farm or nitrate loading risk unit (Nitrogen Balance ratio);
    d. Annual estimation of nitrogen loading to groundwater and surface water, including subsurface drainage (e.g., tile drains),from each ranch/farm or nitrate loading risk unit;
    e. Identification of irrigation and nutrient management practices in progress (identify start date), completed (identify completion date), and planned (identify anticipated start date) to reduce nitrate loading to groundwater to achieve compliance with this Order.
    f. Annual evaluation of reductions in nitrate loading to groundwater resulting from decreased fertilizer use and/or implementation of nutrient management practices;

90. **Within three years** from adoption of this Order or enrollment, Tier 3 Dischargers with High Nitrate Loading Risk must meet the following Nitrogen Balance ratio targets or implement an alternative to demonstrate an equivalent nitrogen load reduction. The Nitrogen Balance ratio refers to the total number of nitrogen units applied to the crop (considering all sources of nitrogen) relative to the typical

nitrogen uptake value of the crop (crop need to grow and produce, amount removed at harvest plus the amount remaining in the system as biomass).

a. Dischargers producing crops in annual rotation (such as a cool season vegetable in a triple cropping system) must achieve a Nitrogen Balance ratio target equal to one (1). A target of one (1) allows a Discharger to apply 100% of the amount of nitrogen required by the crop to grow and produce yield for every crop in the rotation. (Nitrogen applied includes any product, form or concentration, including but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil and nitrate in irrigation water.)

b. Dischargers producing annual crops occupying the ground for the entire year (e.g., strawberries or raspberries) must achieve a Nitrogen Balance ratio target equal to 1.2. A target of 1.2 allows a Discharger to apply 120% of the amount of nitrogen required by the crop to grow and produce a yield.

c. Beyond three years, Dischargers must demonstrate improved irrigation and nutrient management efficiency, improved Nitrogen Balance ratios, and reduced nitrate loading to groundwater. After three years, the Nitrogen Balance ratio must compare the total amount of nitrogen applied to the crop against the total nitrogen removed at harvest, rather than the typical nitrogen crop uptake, to accurately calculate the nitrogen remaining and available to the crop or that could load to groundwater.

91. **Within five years** from adoption of this Order or enrollment, Tier 3 Dischargers with High Nitrate Loading Risk must verify the overall effectiveness of the INMP in protecting groundwater quality and achieving water quality standards for nitrate. Dischargers must identify the methods used to verify effectiveness and include the results as a report in the Annual Compliance Document. The report must be prepared by a state registered professional engineer, professional geologist or a third party approved by the Executive Officer. Dischargers in the same groundwater basin or subbasin may choose to comply with this requirement as a group by submitting a single report that evaluates the overall effectiveness of the broad scale implementation of irrigation and nutrient management practices identified in individual INMPs to protect groundwater and achieve water quality standards for nitrate. Group efforts must use data from individual wells at each operation to adequately represent groundwater quality for all operations in the group. Dischargers must include the following:

a. An evaluation of measured progress towards protecting, preserving, and restoring groundwater quality in the upper-most aquifer, including reductions

in loading based on reduced fertilizer use and improved irrigation and nutrient management practices;

b. A description of the methodology used to evaluate and verify progress (e.g., lysimeter monitoring, shallow groundwater or soil monitoring, groundwater well monitoring, contaminant transport and flow modeling);
c. An evaluation of how discharges of waste and any associated reductions in nitrate loading will decrease the concentration of nitrate in the upper-most aquifer, commensurate with water quality standards, within a reasonable and foreseeable time frame, and compared to milestones identified in Table 3;
d. Based on estimated nitrate loading to the groundwater basin or subbasin, the estimated number of years to achieve water quality standards in receiving water;

Water Quality Buffer Plan

92. **By October 1, 2015,** Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment (see Table 1) must submit to the Executive Officer a Water Quality Buffer Plan that protects the listed waterbody and its associated perennial and intermittent tributaries. The purpose of the Water Quality Buffer Plan is to control discharges of waste that cause or contribute to exceedances of water quality standards in waters of the State or United States in compliance with this Order and the following Basin Plan requirement:

    a. Basin Plan (Chapter 5, p. V-13, Section V.G.4 – Erosion and Sedimentation, *"A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible as measured along the ground surface to the highest anticipated water line."*

    b. As an alternative to the development and implementation of a Water Quality Buffer Plan, Tier 3 Dischargers may submit evidence to the Executive Officer to demonstrate that any discharge of waste is sufficiently treated or controlled such that is of sufficient quality where it will not cause or contribute to exceedances of water quality standards in waters of the State or of the United States.

93. Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment must implement the Water Quality Buffer Plan immediately upon submittal, unless the plan requests a time extension that is approved by the Executive Officer.

If the Executive Officer determines the Water Quality Buffer Plan is not in compliance with this Order, the Executive Officer will notify the Discharger and the Discharger must make necessary modifications accordingly.

94. The Water Quality Buffer Plan must include the following or similar provisions to control discharges of waste and to meet the purpose of the plan:
    a. A minimum 30 foot buffer (as measured horizontally from the top of bank on either side of the waterway, or from the high water mark of a lake and mean high tide of an estuary);
    b. Any necessary increases in buffer width to adequately prevent the discharge of waste that may cause or contribute to any excursion above or outside the acceptable range for any Regional, State, or Federal numeric or narrative water quality standard (e.g., temperature, turbidity, sediment, nutrients, toxicity);
    c. Any buffer less than 30 feet must be justified based on site-specific conditions;
    d. Vegetated zones within the buffer to treat or control temperature, turbidity, sediment, nutrient and pesticide discharges;
    e. Schedule for implementation;
    f. Maintenance provisions to ensure water quality protection;
    g. Annual photo monitoring to be included in the Annual Compliance Document.

95. **Within six months** of adoption of this Order or enrollment, Tier 3 Dischargers must conduct individual discharge monitoring per MRP No. R3-2011-0006.

96. **Within two years** of adoption of this Order or enrollment and quarterly thereafter, Tier 3 Dischargers must submit individual discharge monitoring reports (including identification of any discharges that exceed water quality objectives identified in Attachment A) per MRP No. R3-2011-0006.

Part I. TIME SCHEDULE FOR ACHIEVING COMPLIANCE WITH WATER QUALITY STANDARDS AND MILESTONES

97. General time schedules for key compliance dates and milestones related to Order Conditions are identified in Table 4 (All Dischargers) and Table 5 (Tier 2 and Tier 3 Dischargers). Dischargers must achieve compliance with requirements by dates specified. Milestones indicate progress towards compliance. The Executive Officer may require additional monitoring and reporting as authorized by Water Code section 13267, in cases where Dischargers fail to demonstrate adequate progress towards compliance as indicated by milestones.

98. **Within two years** from the adoption date of this Order, Tier 3 Dischargers must demonstrate that they are not causing or contributing to exceedances of water quality standards for toxicity and pesticides in waters of the State or of the United States. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

99. Within **three years** from the adoption of this Order, Tier 3 Dischargers must demonstrate that they are not causing or contributing to exceedances of water quality standards for sediment and turbidity in waters of the State or of the United States. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

100. **Within four years** from the adoption of this Order, Tier 3 Dischargers must demonstrate that they are not causing or contributing to exceedances of water quality standards for nutrients and salts in surface waters of the State or of the United States. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

101. **Within 10 years** from adoption of this Order**,** Tier 3 Dischargers must demonstrate that they are not causing or contributing to exceedances of water quality standards for nitrate and salts in groundwater. Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.

102. This Order becomes effective on **17 March 2011** and expires on **16 March 2016** unless rescinded or renewed by the Central Coast Water Board.

I, ROGER W. BRIGGS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order and Attachments adopted by the California Regional Water Quality Control Board, Central Coast Region, on 17 March 2011.

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ROGER W. BRIGGS,
Executive Officer

Table 1. 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies Impaired for Temperature, Turbidity, or Sediment

Waterbody	Impairment
Arroyo Seco River	Water Temperature
Aptos Creek	Sediment
Beach Road Ditch	Turbidity
Bean Creek	Sediment
Bear Creek (Santa Cruz County)	Sediment
Blanco Drain	Turbidity
Boulder Creek	Sedimentation
Bradley Canyon Creek	Turbidity
Branciforte Creek	Sedimentation
Carbonera Creek	Sedimentation
Carnadero Creek	Turbidity
Carneros Creek (Monterey County)	Turbidity
Casmalia Canyon Creek	Sedimentation
Chorro Creek	Sedimentation
Chualar Creek	Water Temperature Turbidity
Corralitos Creek	Turbidity
Elkhorn Slough	Sediment
Espinosa Slough	Turbidity
Fall Creek	Sediment
Furlong Creek	Turbidity
Gabilan Creek	Turbidity
Greene Valley Creek (Santa Barbara County)	Water Temperature Turbidity
Kings Creek	Sediment
Llagas Creek (above Chesbro Reservoir)	Water Temperature Turbidity Sediment
Lompico Creek	Sediment
Los Osos Creek	Sediment
Love Creek	Sediment
Main Street Canal	Turbidity
Merrit Ditch	Turbidity
Millers Canal	Water Temperature Turbidity

Moro Cojo Slough	Sediment
Morro Bay	Sediment
Moss Landing Harbor	Sediment
Mountain Charlie Gulch	Sediment
Natividad Creek	Water Temperature Turbidity
Newell Creek (Upper)	Sediment
Old Salinas River	Turbidity
Orcutt Creek	Water Temperature Turbidity
Pacheco Creek	Turbidity
Pajaro River	Turbidity Sediment
Prefumo Creek	Turbidity
Quail Creek	Water Temperature Turbidity
Rider Creek	Sediment
Salinas Reclamation Canal	Turbidity
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	Turbidity
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	Water Temperature Turbidity
Salinas River Refuge Lagoon (South)	Turbidity
Salsipuedes Creek (Santa Cruz County)	Turbidity
San Benito River	Sediment
San Juan Creek (San Benito County)	Turbidity
San Lorenzo	Sediment
San Vicente Creek (Santa Cruz County)	Sediment
Santa Maria River	Turbidity
Santa Rita Creek (Monterey County)	Turbidity
Santa Ynez River (below city of Lompoc to Ocean)	Water Temperature Sediment
Santa Ynez River (Cachuma Lake to below city of Lompoc)	Water Temperature Sediment
Shingle Mill Creek	Sediment
Shuman Canyon Creek	Sediment
Soquel Lagoon	Sediment
Tembladero Slough	Turbidity
Tequisquita Slough	Turbidity

Uvas Creek (below Uvas Reservoir)	Turbidity
Valencia Creek	Sediment
Watsonville Slough	Turbidity
Zayante Creek	Sediment

Table 2. Nitrate Loading Risk Factor Criteria

A. Crop Type Nitrate Hazard Index Rating 1 - Bean, Grapes, Olive. 2 - Apple, Avocado, Barley, Blackberry, Blueberry, Carrot, Chicory, Citrus, Lemon Oat, Orange, Peach, Pear, Pistachio, Raspberry, Walnut, Wheat. 3 - Artichoke, Bean, Brussel Sprout, Corn, Cucumber, Daikon, Peas, Radish, Squash, Summer, Tomato, Turnip, Squash, Rutabaga, Pumpkin, Potato. 4 – Beet, Broccoli, Cabbage, Cauliflower, Celery, Chinese Cabbage (Napa),Collard, Endive, Kale, Leek, Lettuce, Mustard, Onion, Parsley, Pepper, Spinach, Strawberry. (Based on UC Riverside Nitrate Hazard Index)
B. Irrigation System Type Rating 1 - Micro-irrigation year round (drip and micro-sprinklers) and no pre-irrigation; 2 - Sprinklers used for pre-irrigation only and then micro-irrigation; 3 - Sprinklers used for germination or at any time during growing season; 4 - Surface irrigation systems (furrow or flood) at any, and/or in combination with any other irrigation system type; (Based on UC Riverside Nitrate Hazard Index, Adapted for the Central Coast Region)
C. Irrigation Water Nitrate Concentration Rating 1 – Nitrate concentration 0 to 45 mg/liter Nitrate NO3 2 - Nitrate concentration 46 to 60 mg/liter Nitrate NO3 3 - Nitrate concentration 61to 100 mg/liter Nitrate NO3 4 - Nitrate concentration > 100 mg/l Nitrate NO3
D. Nitrate Loading Risk Calculation = A x B x C LOW - Nitrate loading risk is less than 10; MODERATE – Nitrate loading risk is between 10 and 15; HIGH – Nitrate loading risk is more than 15; *Note: Dischargers must determine the nitrate loading risk factor for each ranch/farm, based on the criteria associated with the highest risk activity existing at each ranch/farm. For example, the ranch/farm is assigned the highest risk factor, based on the single highest risk crop in the rotation, on one block under furrow irrigation, or on one well with high nitrate concentration.*

Table 3. 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies Impaired for Toxicity, Pesticides

Waterbody	Impairment
Alisal Slough (Monterey County)	Toxicity
Arana Gulch	Pesticides
Arroyo Paredon	Pesticides Toxicity
Bell Creek (Santa Barbara Co)	Toxicity
Blanco Drain	Pesticides
Blosser Channel	Pesticides Toxicity
Bradley Canyon Creek	Toxicity
Bradley Channel	Pesticides Toxicity
Branciforte Creek	Pesticides
Carpinteria Creek	Pesticides
Chualar Creek	Pesticides Toxicity
Elkhorn Slough	Pesticides
Espinosa Lake	Pesticides
Espinosa Slough	Pesticides Toxicity
Franklin Creek (Santa Barbara County)	Pesticides
Furlong Creek	Pesticides
Gabilan Creek	Toxicity
Glen Annie Canyon	Toxicity
Greene Valley Creek (Santa Barbara County)	Pesticides Toxicity
Little Oso Flaco Creek	Toxicity
Llagas Creek (below Chesbro Reservoir)	Pesticides
Main Street Canal	Pesticides Toxicity
Merrit Ditch	Toxicity
Millers Canal	Pesticides
Mission Creek (Santa Barbara County)	Toxicity
Moro Cojo Slough	Pesticides
Moss Landing Harbor	Pesticides
Natividad Creek	Toxicity
Nipomo Creek	Toxicity
Old Salinas River	Pesticides

	Toxicity
Old Salinas River Estuary	Pesticides
Orcutt Creek	Pesticides Toxicity
Oso Flaco Creek	Toxicity
Oso Flaco Lake	Pesticides
Pajaro River	Pesticides
Quail Creek	Pesticides Toxicity
Rincon Creek	Toxicity
Salinas Reclamation Canal	Pesticides Toxicity
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	Pesticides Toxicity
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	Pesticides Toxicity
Salinas River Lagoon (North)	Pesticides
San Benito River	Toxicity
San Antionio Creek (San Antonio Watershed, Rancho del las Flores Bridge at Hwy 135 to downstream at Railroad Bridge)	Pesticides
San Juan Creek (San Benito County)	Toxicity
San Luis Obispo Creek (below Osos Street)	Pesticides
San Lorenzo River	Pesticides
Santa Maria River	Pesticides Toxicity
Schwan Lake	Pesticides
Tembladero Slough	Pesticides Toxicity
Watsonville Slough	Pesticides

Table 4. Time Schedule for Key Compliance Dates All Dischargers (Tier 1, Tier 2, and Tier 3)

REQUIREMENT	COMPLIANCE DATE[1]
Submit Notice of Intent (NOI)	Within 30 days of adoption of Order or Within 30 days acquiring ownership/ control, and prior to any discharge or commencement of activities that may cause discharge.
Submit Updated NOI	Within 30 days, upon change
Submit Notice of Termination	Immediately, when applicable
Implement best management practices, treatment or control measures, or change farming practices to achieve compliance with this Order.	Immediately
Protect existing aquatic habitat to prevent discharge of waste	Immediately
Submit Quality Assurance Project Plan and, Sampling And Analysis Plan, for receiving water quality monitoring	Within three months
Initiate receiving water quality monitoring	Within six months
Submit receiving water quality monitoring annual report	Within one year, and annually thereafter
Initiate sampling of groundwater wells	Within 12 months
Develop and Implement Farm Plan	Within 18 months
Complete 15 Hours Of Farm Water Quality Education	Within 18 months
Submit Groundwater Report	Within two years
Install and Maintain adequate backflow prevention devices.	Within three years

[1] General time schedules for key compliance dates and milestones related to Order Conditions. Dates are relative to adoption of this Order or enrollment date for Dischargers enrolled after the adoption of this Order, unless otherwise specified. Dischargers must achieve compliance for requirements by dates specified. Milestones indicate progress towards compliance.

Table 5. Additional Time Schedule for Key Compliance Dates for Tier 2 and Tier 3 Dischargers

REQUIREMENT	COMPLIANCE DATE[1]
Tier 2 and Tier 3:	
Submit Annual Compliance Document with all required reporting information as listed in MRP No. R3-2011-0006)	October 1, 2012, and annually thereafter.
Conduct photo monitoring of riparian or wetland are habitat (if operation contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	October 1, 2012, and every four years thereafter
Report Nitrate Loading Risk level in Annual Compliance Document	October 1, 2012, and annually thereafter.
Report total nitrogen applied per acre, per crop in Annual Compliance Document (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter.
Only Tier 3:	
Submit Quality Assurance Project Plan and, Sampling And Analysis Plan, for Individual Discharge Monitoring	Within four months
Initiate individual discharge monitoring	Within six months
Determine Crop Nitrogen Uptake (if discharge has High Nitrate Loading Risk)	Within one year
Submit individual discharge monitoring annual report	Within two years, and annually thereafter
Develop Irrigation and Nutrient Management Plan (INMP) (if discharge has High Nitrate Loading Risk)	Within two years
Report INMP elements in Annual Compliance Document (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter
Demonstrate that discharge is not causing or contributing to exceedances of pesticide or toxicity water quality standards in waters of the State or United States[2].	Within two years *Milestones:* *Individual Discharge Monitoring indicates –* *12 Months - one of two samples is not toxic.* *24 Months - two of two samples is not toxic.*
Achieve Nitrogen Balance Ratio target equal to one (1) for crops in annual rotation (e.g. cool season vegetables), (if discharge has High Nitrate Loading Risk)	Within three years

Achieve Nitrogen Balance Ratio target equal to 1.2 for annual crops occupying the ground for the entire year (e.g. strawberries or raspberries), (if discharge has High Nitrate Loading Risk)	
Demonstrate that discharge is not causing or contributing to exceedances of sediment and turbidity water quality standards in waters of the State or United States[2].	Within three years *Milestones:* *Individual Discharge Monitoring indicates –* *12 Months – Four samples collected.* *24 Months – 75% reduction in turbidity / sediment load*
Demonstrate that discharge (not including subsurface drainage to tiledrains) is not causing or contributing to exceedances of nutrient water quality standards in waters of the State or United States[2].	Within four years *Milestones:* *Individual Discharge Monitoring indicates –* *12 Months – Four samples collected* *24 Months – 50% load reduction of measured nutrients in irrigation runoff* *36 Months – 75% load reduction of measured nutrients in irrigation runoff*
Submit Water Quality Buffer Plan (if operation contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	Within four years
Submit INMP Effectiveness Report (if discharge has High Nitrate Loading Risk)	Within five years
Demonstrate that discharge is not causing or contributing to exceedances of nitrate drinking water quality standards in groundwater[2].	Within 10 years *Milestones:* *Years 3 – 5, Annual reduction in nitrogen loading to groundwater*

[1] General time schedules for key compliance dates and milestones related to Order Conditions. Dates are relative to adoption of this Order or enrollment date for Dischargers enrolled after the adoption of this Order, unless otherwise specified. Dischargers must achieve compliance for requirements by dates specified. Milestones indicate progress towards compliance.

[2]Documentation may include data and information related to groundwater sampling, individual discharge monitoring, implementation of best management practices, treatment or control measures, or changes in farming practices to achieve compliance with this Order.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

DRAFT

ORDER NO. R3-2011-0006

ADDITIONAL FINDINGS, APPLICABLE WATER QUALITY CONTROL PLANS AND DEFINITIONS FOR CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

Order No. R3-2011-0006 (Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands) requires Dischargers to comply with applicable state plans and policies and applicable state and federal water quality standards and to prevent nuisance. Water quality standards are set forth in state and federal plans, policies, and regulations. The California Regional Water Quality Control Board Central Coast Region's (Central Coast Water Board) Water Quality Control Plan contains specific water quality objectives, beneficial uses, and implementation plans that are applicable to discharges of waste and/or waterbodies that receive discharges of waste from irrigated lands. The State Water Resources Control Board (State Water Board) has adopted plans and policies that may be applicable to discharges of waste and/or surface waterbodies or groundwater that receive discharges of waste from irrigated lands. The United States Environmental Protection Agency (USEPA) has adopted the *National Toxics Rule* and the *California Toxics Rule*, which constitute water quality criteria that apply to waters of the United States.

The specific waste constituents required to be monitored and the applicable water quality standards that protect identified beneficial uses for the receiving water are set forth in the Monitoring and Reporting Program Order No. R3-2011-0006.

This Attachment A lists additional findings (Part A), relevant plans, policies, regulations (Part B), and definitions of terms (Part C) used in Order No. R3-2011-0006.

PART A. ADDITIONAL FINDINGS

The California Regional Water Quality Control Board, Central Coast Region additionally finds that:

1. The Central Coast Water Board is the principle state agency in the Central Coast Region with primary responsibility for the coordination and control of water quality. (Cal. Wat. Code § 13001, Legislative Intent) The purpose of this Order is to is focus on the highest water quality priorities and maximize water quality protection to ensure the long-term reliability and availability of water resources of sufficient supply and quality for all present and future beneficial uses, including drinking water and aquatic life. Given the magnitude and severity of water quality impairment and impacts to beneficial uses caused by irrigated agriculture and the significant cost to the public, the Central Coast Water Board finds that it is reasonable and necessary to require specific actions to protect water quality.

2. The Central Coast Water Board recognizes that Dischargers may not achieve immediate compliance with all requirements. Thus, this Order provides reasonable schedules for Dischargers to reach full compliance over many years by implementing management measures and monitoring and reporting programs that demonstrate and verify measurable progress annually. This Order includes specific dates to achieve water quality standards in surface and groundwaters; some compliance dates may extend beyond the term of this Order.

3. According to California Water Code Section 13263(g), the discharge of waste to waters of the State is a privilege, not a right. It is the responsibility of dischargers of waste from irrigated lands to comply with the Water Code by seeking waste discharge requirements (WDRs) or by complying with a waiver of WDRs. This Order waiving the requirement to submit a report of waste discharge (ROWD) and the requirement to obtain WDRs provides a mechanism for dischargers of waste from irrigated lands to meet their responsibility to comply with the Water Code and to prevent degradation of waters of the State, prevent nuisance, and to protect the beneficial uses. Dischargers are responsible for the quality of surface waters and ground waters that have received discharges of waste from their irrigated lands.

AGRICULTURAL AND WATER RESOURCES IN THE CENTRAL COAST REGION

4. In the Central Coast Region, nearly all agricultural, municipal, industrial, and domestic water supply comes from groundwater. Groundwater supplies approximately 90 percent of the drinking water on the Central Coast. Currently, more than 700 municipal public supply wells in the Central Coast Region provide drinking water served to the public by cities, counties, and local water agencies. In

addition, based on 1990 census data, there are more than 40,000 permitted private wells, most providing domestic drinking water to rural households and communities from shallow sources. The number of private domestic wells has likely significantly increased in the past 20 years due to population growth.

5. In the Salinas, Pajaro, and Santa Maria groundwater basins, agriculture accounts for approximately 80 to 90 percent of groundwater pumping (MCWRA, 2007; PVWMA, 2002; Luhdorff and Scalmanini Consulting Engineers. April 2009).

6. The Central Coast Region supports some of the most significant biodiversity of any temperate region in the world and is home to the last remaining population of the California Sea Otter, three sub-species of threatened or endangered Steelhead (*Oncorhynchus mykiss*) and one sub-species of endangered Coho Salmon (*Oncorhynchus kisutch*). The endangered marsh sandwort (*Arenaria paludicola*), Gambel's watercress (*Nasturtium rorippa gambelii*), California least tern (*Sterna antillarum browni*), and threatened red-legged frog (*Rana aurora*) are present in the region.

7. Several watersheds drain into Monterey Bay National Marine Sanctuary, one of the largest marine sanctuaries in the world. Elkhorn Slough, is one of the largest remaining tidal wetlands in the United States and one of the National Oceanic and Atmospheric Administration (NOAA) designated National Estuarine Research Reserves. The southern portion includes the Morro Bay National Estuary and extensive salt marsh habitat.

8. The two endangered plants, marsh sandwort and Gambel's watercress are critically imperiled and their survival depends upon the health of the Oso Flaco watershed. The last remaining known population of marsh sandwort and one of the last two remaining known populations of Gambel's watercress occur in Oso Flaco Lake (United States Department of the Interior Fish and Wildlife Service, 2007).

9. The Central Coast of California is one of the most productive and profitable agricultural regions in the nation, reflecting a gross production value of more than six billion dollars in 2008 and contributing to more than 14 percent of California's agricultural economy. The region 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. An adequate water supply of sufficient quality is critical to supporting the agricultural industry on the Central Coast.

LEGAL AND REGULATORY CONSIDERATIONS

10. This Attachment A to Order No. R3-2011-0006 identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that

contain regulatory requirements that apply to the discharge of waste from irrigated lands. This Attachment A also provides definitions of terms for purposes of this Order.

11. The Porter-Cologne Water Quality Control Act grants authority to the State Water Board with respect to State water rights and water quality regulations and policy, and establishes nine Regional Water Boards with authority to regulate discharges of waste that could affect the quality of waters of the State and to adopt water quality regulations and policy.

12. As further described in the Order, discharges from irrigated lands affect the quality of the waters of the State depending on the quantity of the discharge, quantity of the waste, the quality of the waste, the extent of treatment, soil characteristics, distance to surface water, depth to groundwater, crop type, implementation of management practices and other site-specific factors. Discharges from irrigated lands have impaired and will continue to impair the quality of the waters of the State within the Central Coast Region if such discharges are not controlled.

13. Water Code Section 13267(b)(1) authorizes the Central Coast Water Board to require dischargers to submit technical reports necessary to evaluate Discharger compliance with the terms and conditions of this Order and to assure protection of waters of the State. The Order, this Attachment A, and the records of the Water Board provide the evidence demonstrating that discharges of waste from irrigated lands have degraded and/or polluted the waters of the state. Persons subject to this Order discharge waste from irrigated lands that impacts the quality of the waters of the state. Therefore it is reasonable to require such persons to prepare and submit technical reports.

14. Water Code Section 13269 provides that the Central Coast Water Board may waive the requirement in Water Code section 13260 to submit a report of waste discharge and the requirement in Water Code section 13260(a) to obtain WDRs. Water Code section 13269 further provides that any such waiver of WDRs shall be conditional, must include monitoring requirements unless waived, may not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board or Executive Officer.

15. Water Code Section 13269(a)(4)(A) authorizes the Central Coast Water Board to include as a condition of a Conditional Waiver the payment of an annual fee established by the State Water Board. California Code of Regulations, Title 23, Division 3, Chapter 9, Article 1, Section 2200.3 sets forth the applicable fees. The Order requires each Discharger to pay an annual fee to the State Water Board in compliance with the fee schedule.

16. The Water Quality Control Plan for the Central Coast Basin (Basin Plan) designates beneficial uses, establishes water quality objectives, contains programs of implementation needed to achieve water quality objectives, and references the plans and policies adopted by the State Water Board. The water quality objectives are required to protect the beneficial uses of waters of the State identified in this Attachment A.

17. The Order is consistent with the Basin Plan because it requires Dischargers to comply with applicable water quality standards, as defined in this Attachment A, and requires terms and conditions, including implementation of management practices as defined in Attachment B. The Order also requires monitoring and reporting as defined in Monitoring and Reporting Program (MRP) No. R3-2011-0006 to determine the effects of discharges of waste from irrigated lands on water quality, verify the adequacy and effectiveness of this Order's terms and conditions, and to evaluate individual Discharger's compliance with this Order.

18. Water Code Section 13246 requires boards, in carrying out activities that affect water quality to comply with State Water Board policy for water quality control. This Order requires compliance with applicable State Water Board policies for water quality control.

19. This Order implements and complies with the requirements of the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Policy) adopted by the State Water Board in May 2004. The NPS Policy requires, among other key elements, that an NPS control implementation program's ultimate purpose shall be explicitly stated and that the implementation program must, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable anti-degradation requirements. The NPS Policy improves the State's ability to effectively manage NPS pollution and conform to the requirements of the Federal Clean Water Act and the Federal Coastal Zone Act Reauthorization Amendments of 1990. The NPS Policy provides a bridge between the State Water Board's January 2000 *NPS Program Plan* and its 2010 *Water Quality Enforcement Policy*. The NPS Policy's five key elements are:

    a. Key Element #1 - Addresses NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses
    b. Key Element #2 - Includes an implementation program with descriptions of the Management Practices (MPs) and other program elements and the process to be used to ensure and verify proper MP implementation
    c. Key Element #3 - Includes a specific time schedule and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements

d. Key Element #4 - Contains monitoring and reporting requirements that allow the Water Board, dischargers, and the public to determine that the program is achieving its stated purpose(s) and/or whether additional or different MPs or other actions are required
e. Key Element #5 - Clearly discusses the potential consequences for failure to achieve the NPS control implementation program's stated purposes

20. This Order is consistent with provisions of State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Regional boards, in regulating the discharge of waste, must maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies. The Order will result in improved water quality throughout the region. 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. The conditions of this waiver will protect high quality waters and restore waters that have already experienced some degradation.

21. This Order is consistent with State Water Board Resolution 68-16. This Order requires Dischargers to 1) comply with the terms and conditions of the Order and meet applicable water quality standards in the waters of the State; 2) to develop and implement management practices, treatment or control measures, or change farming practices, when discharges are causing or contributing to exceedances of applicable water quality standards; 3) conduct activities in a manner to prevent nuisance, and 4) conduct activities required by MRP Order No. R3-2011-0006 and revisions thereto.

RATIONALE FOR THIS ORDER

22. On April 15, 1983, the Central Coast Water Board approved a policy allowing waivers of WDRs for 26 categories of discharges, including irrigation return flows and non-NPDES stormwater runoff. Pursuant to Water Code Section 13269, these waivers terminated on January 1, 2003.

23. On July 9, 2004, the Central Coast Water Board adopted Resolution No. R3-2004-0117 establishing the 2004 Agricultural Order.

24. Dischargers enrolled in the 2004 Agricultural Order established the Cooperative Monitoring Program (CMP) in compliance with monitoring requirements. The CMP collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds and identified severe surface water quality impairments resulting from

agricultural land uses and discharges. CMP did not attempt to identify the individual farm operations that are causing the surface water quality impairments. The lack of discharge monitoring and reporting, the lack of verification of on-farm water quality improvements, and the lack of public transparency regarding on-farm discharges, are critical limitations of the 2004 Agricultural Order, especially given the scale and severity of the surface water and groundwater impacts and the resulting costs to society. The Order addresses these limitations.

25. The Central Coast Water Board extended the 2004 Agricultural Order on July 10, 2009 and again on July 8, 2010 as documented in Order No. R3-2009-0050 and Order No. R3-2010-0040. The 2004 Agricultural Order expires on March 31, 2011.

26. The Central Coast Water Board reviewed all available data, including information collected in compliance with the 2004 Agricultural Order, and determined that discharges of waste from irrigated lands continue to result in degradation and pollution of surface water and groundwater, and impairment of beneficial uses, including drinking water and aquatic habitat, and determines that additional conditions are necessary to assure protection of water quality and to measure the effectiveness of implementation of the Order.

27. The Central Coast Water Board finds that it is appropriate to adopt a waiver of ROWDs and WDRs for this category of discharges because, as a group, the discharges have the same or similar waste from the same or similar operations and use the same or similar treatment methods and management practices (e.g., source control, reduced agricultural surface runoff, reduced chemical use, holding times, cover crops, etc.).

28. The Central Coast Water Board finds that it is appropriate to regulate discharges of waste from irrigated lands under a Conditional Waiver rather than individual WDRs in order to simplify and streamline the regulatory process. Water Board staff estimate that there are more than 3000 individual owners and/or operators of irrigated lands who discharge waste from irrigated lands; therefore, it is not an efficient use of resources to adopt individual WDRs for all Dischargers within a reasonable time.

29. This Order is in the public interest because:

    a. The Order was adopted in compliance with Water Code Sections 13260, 13263, and 13269 and other applicable law;
    b. The Order requires compliance with water quality standards;
    c. The Order includes conditions that are intended to eliminate, reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the State;

d. The Order contains more specific and more stringent conditions for protection of water quality compared to the 2004 Agricultural Order;
e. The Order contains conditions that are similar to the conditions of municipal stormwater NPDES permits, including evaluation and implementation of management practices to meet applicable water quality standards and a more specific MRP;
f. The Order focuses on the highest priority water quality issues and most severely impaired waters;
g. The Order provides for an efficient and effective use of Central Coast Water Board resources, given the magnitude of the discharges and number of persons who discharge waste from irrigated lands;
h. The Order provides reasonable flexibility for the Dischargers who seek coverage under this Order by providing them with a reasonable time schedule and options for complying with the Water Code.

30. This Order waives the requirement to submit ROWDs and to obtain WDRs for discharges of waste from irrigated lands. This Order is conditional; may be terminated at any time; does not permit any illegal activity; does not preclude the need for permits that may be required by other State or local government agencies; and does not preclude the Central Coast Water Board from administering enforcement remedies (including civil liability) pursuant to the Water Code.

31. The Central Coast Water Board may consider issuing some individual WDRs to some Dischargers because of their actual or potential contribution to water quality impairments, history of violations, or other factors.

IMPACTS TO WATER QUALITY FROM AGRICULTURAL DISCHARGES

Impacts to Groundwater – Drinking Water and Human Health

32. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the primary source of nitrate pollution of drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices (Carle, S.F., et. al., June 2006).

33. Groundwater pollution from nitrate severely impacts public drinking water supplies in the Central Coast Region. A Department of Water Resources (DWR, 2003) survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast Region found that 17 percent of the wells (121 wells) detected a constituent at concentrations above one or more California Department of Public Health (CDPH) drinking water standards or primary maximum contaminant levels (MCLs). Nitrate caused the most frequent MCL

exceedances (45 mg/L nitrate as nitrate or 10 mg/L nitrate as nitrogen), with approximately 9 percent of the wells (64 wells) exceeding the drinking water standard for nitrate. According to data reported by the GeoTracker-State Water Board's Groundwater Ambient Monitoring and Assessment Program (GAMA) website (http://geotrackerbeta.ecointeractive.com/gama/), recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells impacted) and Santa Maria (approximately 17 percent) groundwater basins. In the Gilroy-Hollister Groundwater Basin, 12.5 percent of the public supply wells are impacted (Data obtained using the GeoTracker DPH Public Supply Well Search Tool [http://geotrackerbeta.ecointeractive.com/gama/] for nitrate for wells located in the Gilroy-Hollister groundwater basin. The well data includes Department of Public Health data for well sampling information ranging from 2006 until 2009). CDPH identified over half of the drinking water supply wells as vulnerable to discharges from agricultural-related activities in that basin. This information is readily tracked and evaluated because data are collected on a regular frequency, made publicly available, and public drinking water supplies are regulated by CDPH as required by California law. (http://swap.ice.ucdavis.edu/tsinfo/tsintro.asp and a description of the methodology is available at http://ww2.cdph.ca.gov/certlic/drinkingwater/Documents/DWSAPGuidance/DWSAP_document.pdf).

34. Groundwater pollution from nitrate severely impact shallow domestic wells in the Central Coast Region resulting in unsafe drinking water in rural communities. Domestic wells (wells supplying one to several households) are typically drilled in relatively shallow groundwater, and as a result exhibit higher nitrate concentrations than deeper public supply wells. Water quality monitoring of domestic wells is not generally required and water quality information is not readily available; however, based on the limited data available, the number of domestic wells that exceed the nitrate drinking water standard is likely in the range of several hundreds or more. Private domestic well water quality is not regulated and it is estimated that thousands of rural residents drink water from these impaired sources without knowing the quality of drinking water and without treatment.

35. In the northern Salinas Valley, 25 percent of 352 wells sampled (88 wells) had concentrations above the nitrate drinking water standard. In other portions of the Salinas Valley, up to approximately 50 percent of the wells surveyed had concentrations above the nitrate drinking water standard, with average concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water standard (Monterey County Water Resources Agency [MCWRA], 1995). Nitrate exceedances in the Gilroy-Hollister and Pajaro groundwater basins reflect similar severe impairment, as reported by local water agencies/districts for those basins (SCVWD, 2001; SWRCB, 2005; San Benito County Water District, 2007; Kennedy/Jenks Consultants, 2008).

36. Local county and water district reports indicate that in the Pajaro River watershed, the highest recent nitrate concentration (over 650 mg/L nitrate, more than 14 times the drinking water standard) occurred in shallow wells in the eastern San Juan subbasin under intense agricultural production. High values of nitrate concentration in groundwater (greater than 500 mg/L nitrate) have also been reported in the Llagas subbasin and the lower Pajaro coastal aquifer.

37. The costs of groundwater pollution and impacts to beneficial uses caused by irrigated agriculture are transferred to the public. Public drinking water systems expend millions of dollars in treatment and replacement costs and private well owners must invest in expensive treatment options or find new sources. Rural communities, those least able to buy alternative water sources, have few options to replace the contaminated water in their homes. This Order addresses groundwater pollution to ensure protection of beneficial uses and public health.

38. Excessive concentrations of nitrate-nitrogen or nitrite-nitrogen in drinking water are hazardous to human health, especially for infants and pregnant women. The United States Environmental Protection Agency (USEPA) established a nitrate drinking water standard of 45 mg/L nitrate as nitrate (10 mg/L nitrate as nitrogen). While acute health effects from excessive nitrate levels in drinking water are primarily limited to infants (methemoglobinemia or "blue baby syndrome"), research evidence suggests there may be adverse health effects (i.e., increased risk of non-Hodgkin's, diabetes, Parkinson's disease, alzheimers, endrocrine disruption, cancer of the organs) among adults as a result of long-term consumption exposure to nitrate (Sohn, E., 2009; Pelley, J., 2003; Weyer, P., et. al., 2001, Ward, M.H., et. al., 1996) .

39. Nitrogen compounds are known to cause cancer. University of Iowa research found that up to 20 percent of ingested nitrate is transformed in the body to nitrite, which can then undergo transformation in the stomach, colon, and bladder to form N-nitroso compounds that are known to cause cancer in a variety of organs in more than 40 animal species, including primates (Weyer, P., et. al., 2001).

40. In many cases, whole communities that rely on groundwater for drinking water are threatened due to nitrate pollution, including the community of San Jerardo and other rural communities in the Salinas Valley. Local agencies and consumers have reported impacts to human health resulting from nitrate contaminated groundwater likely due to agricultural land uses, and spent significant financial resources to ensure proper drinking water treatment and reliable sources of safe drinking water for the long-term (CCRWQCB, 2009).

41. Current strategies for addressing nitrate in groundwater to achieve levels protective of human health typically include avoidance (abandoning impacted wells

or re-drilling to a deeper zone), groundwater treatment to remove nitrate (i.e., dilution using blending, ion exchange, reverse osmosis, biological denitrification, and distillation), or developing additional water supplies (i.e., percolation ponds, surface water pipelines, reservoirs) to dilute nitrate-impacted sources (Lewandowski, A.M., May 2008; Washington State Department of Health, 2005).

42. The cost to treat and clean up existing nitrate pollution to achieve levels that are protective of human health are very expensive to water users (e.g., farmers, municipalities, domestic well users). Research indicates that the cost to remove nitrate from groundwater can range from hundreds of thousands to millions of dollars annually for individual municipal or domestic wells (Burge and Halden, 1999; Lewandowski, May 2008). Wellhead treatment on a region wide scale is estimated to cost billions of dollars. Similarly, the cost to actively cleanup nitrate in groundwater on a region wide scale would also cost billions of dollars, and would be logistically difficult. If the nitrate loading due to agricultural activities is not significantly reduced, these costs are likely to increase significantly.

43. Many public water supply systems are required to provide well-head treatment or blending of drinking water sources, at significant cost, to treat nitrate before delivery to the drinking water consumer due to elevated concentrations of nitrate in groundwater. The community of San Jerardo (rural housing cooperative of primarily low-income farmworker families with approximately 250 residents) initially installed well-head treatment to treat contaminated groundwater with nitrate and other chemicals at significant cost and incurs on-going monthly treatment costs of approximately $17,000. Monterey County public health officials determined that the community of San Jerardo requires a new drinking water well to ensure safe drinking water quality protective of public health at an approximate cost of more than $4 million. The City of Morro Bay uses drinking water supplies from Morro and Chorro groundwater basins. Study results indicate that agricultural activities in these areas, predominantly over-application of fertilizer, have impacted drinking water supplies resulting in nitrate concentrations more than 4 times the drinking water standard (Cleath and Associates, 2007). The City of Morro Bay must blend or provide well-head treatment to keep nitrate concentrations at levels safe for drinking water at significant cost (City of Morro Bay, 2006). The City of Santa Maria public supply wells are also impacted by nitrate (in some areas nearly twice the drinking water standard) and must also blend sources to provide safe drinking water (City of Santa Maria, 2008).

Impacts to Groundwater – Nitrate and Salts

44. Groundwater pollution due to salts is also one of the most significant and critical problems in the Central Coast Region. Agricultural activities are a significant cause of salt pollution (Monterey County Flood Control and Water Conservation District, 1990), primarily due to the following:

a. Seawater intrusion within the coastal basins (e.g., Salinas and Pajaro groundwater basins) caused by excessive agricultural pumping (MCWRA, 2007).
b. Agricultural pumping/recycling of groundwater that concentrates salts in the aquifers.
c. Agricultural leaching of salts from the root zone.
d. The importation of salts into the basin from agricultural soil amendments and domestic/municipal wastewater discharges.

45. Based on the high proportion of groundwater extractions, agricultural pumping of groundwater contributes to saltwater intrusion into the Salinas and Pajaro groundwater basins, which is causing increasing portions of the groundwater basins to be unusable for agriculture and municipal supply (MCWRA, 2008 and Pajaro Valley Water Resource Agency, 2002).

46. Agricultural activities contribute significant loading of nitrates into groundwater from the following sources (Monterey County Flood Control and Water Conservation District, 1988):

a. Intensive fertilizer applications on permeable soils.
b. Liquid fertilizer hookups on well pump discharge lines lacking backflow prevention devices.
c. Groundwater wells that are screened through multiple aquifers, thereby acting as conduits for pollution transport into deeper groundwater.
d. Spills and/or uncontrolled wash water or runoff from fertilizer handling and storage operations.

47. Agricultural discharges contribute to pollution of groundwater basins most vulnerable to waste migration including major portions of the Santa Maria, Salinas, and Gilroy-Hollister groundwater basins. However, any groundwater basin, including those that are confined (pressured), are susceptible to downward waste migration through improperly constructed, operated (e.g., fertigation or chemigation without backflow prevention), or abandoned wells. Additionally, land with permeable soils and shallow groundwater are susceptible to downward waste migration. Such areas of groundwater vulnerability often overlap with important recharge areas that serve to replenish drinking water supplies.

48. Agricultural discharges of fertilizer are the main source of nitrate pollution to shallow groundwater based on nitrate loading studies conducted in the Llagas subbasin and the lower Salinas groundwater basin (Carle, S.F., et al., June 2006). In 2007, the California Department of Food and Agriculture (CDFA) reported that approximately 56 million pounds of nitrogen were purchased as fertilizer in Monterey County. A 1990 Monterey County study of nitrate sources leaching to

soil and potentially groundwater in Santa Cruz and Monterey Counties indicated that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in these areas (Monterey County Flood Control and Water Conservation District, November 1990).

49. A groundwater study in the Llagas subbasin indicates that nitrate pollution in groundwater is elevated in the shallow aquifer because it is highly vulnerable due to high recharge rates and rapid transport, and that the dominant source of nitrate is synthetic fertilizers. Groundwater age data in relation to nitrate concentration indicate that the rate of nitrate loading to the shallow aquifer is not yet decreasing in the areas sampled. In areas east of Gilroy, groundwater nitrate concentrations more than double the drinking water standard correspond to younger groundwater ages (less than seven years old and in some cases less than two years old), indicating that the nitrate pollution is due to recent nitrate loading and not legacy farming practices (Moran et al., 2005).

50. The University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index) in 1995. The Nitrate Hazard Index identifies agricultural fields with the highest vulnerability for nitrate pollution to groundwater, based on soil, crop, and irrigation practices. Based on the Nitrate Hazard Index, the following crop types present the greatest risk for nitrate loading to groundwater: Beet, Broccoli, Cabbage, Cauliflower, Celery, Chinese Cabbage (Napa),Collard, Endive, Kale, Leek, Lettuce, Mustard, Onion, Spinach, Strawberry, Pepper, and Parsley.

Impacts to Groundwater – Pesticides

51. The Department of Pesticide Regulation (DPR) has identified two Groundwater Protection Areas that are vulnerable to pesticide contamination in San Luis Obispo County (south of Arroyo Grande, west of Nipomo Mesa, and north of the Santa Maria River) and Monterey County (Salinas area).

52. Based on a 2007 DPR report, pesticide detections in groundwater are rare in the Central Coast region. Of 313 groundwater wells sampled in the Central Coast region, six wells (1.9%) had pesticide detections in less than two samples (considered unverified detections).

53. A review of DPR data collected from 1984 – 2009 indicates that the three pesticides/pesticide degradates with the highest detection frequency were chlorthal-dimethyl and degradates (total), TPA (2,3,5,6-tetrachloroterephthalic acl) and carbon disulfide. Compounds reported by DPR above a preliminary health goal (PHG) or drinking water standard include (by county): ethylene dibromide (2002), atrazine (1993), and dinoseb (1987) Monterey; heptachlor (1989), ethylene dibromide (1989) Santa Barbara; benzene (various dates 1994-2007), 1,2,4-

trichlorobenzene (1991) Santa Cruz; ethylene dibromide (1994, 2008, 2009) San Luis Obispo; and 1,1,2,2-tetrachloroethane (1998) Santa Clara.

54. Results from pesticide analyses conducted as part of the Groundwater Ambient Monitoring and Assesment Program (GAMA) studies in the Central Coast region (Kulongoski, 2007; Mathany 2010) indicate a significant presence of pesticides in groundwater. GAMA achieved ultra-low detection levels of between 0.004 and 0.12 micrograms per liter (generally less than .01 micrograms per liter). Out of 54 wells sampled in groundwater basins in the south coast range study unit (bounded by the Santa Lucia and San Luis Ranges, and San Raphael Mountains to the north and east, and the Santa Ynez mountains to the south), 28 percent of the wells had 11 pesticides or pesticide degradates detected in groundwater samples, with the three most abundant detections being deethylatrazine (18.5 percent), atrazine (9.3 percent), and simazine (5.6 percent). Twenty-eight percent of 97 wells sampled in the Monterey Bay and Salinas Valley Basins had pesticide detections, including 18 percent for simazine, 11 percent for deethylatrazine, and 5 percent for atrazine. None of the pesticides detected as part of the GAMA program exceeded any drinking water standard or health-based threshold value.

Impacts to Surface Water

55. The 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region (2010 List of Impaired Waterbodies) identified surface water impairments for approximately 700 waterbodies related to a variety of pollutants (e.g. salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment.

56. The impact from agricultural discharges on surface water quality is or has been monitored by various monitoring programs, including:

    a. The Central Coast Water Board's Ambient Monitoring Program: Over the past 10 years, the Central Coast Ambient Monitoring Program (CCAMP) has collected and analyzed water quality data to address 25 conventional water quality parameters from 185 sites across the Central Coast Region to assess surface water quality. To support analysis of conventional water quality data CCAMP has collected bioassessment data from 100 of the 185 sites, water toxicity data from 134 of the 185 sites, and sediment toxicity from 57 of the 185 sites. CCAMP data show widespread toxicity and pollution in agricultural areas.
    b. Cooperative Monitoring Program (CMP): Over the last 5 years, the CMP has focused on assessing agricultural water quality for the 2004 Agricultural Order, and collected and analyzed data for 15 to 20 parameters from 50 sites

in multiple watersheds. CMP data show widespread toxicity and pollution in agricultural areas.

57. Data from CCAMP and CMP indicate that surface waterbodies are severely impacted in the lower Salinas and Santa Maria watersheds due to the intensive agricultural activity in these areas, and water quality in these areas are the most severely impaired in the Central Coast Region.

Impacts to Surface Water – Nutrients

58. Nitrate pollution in surface water is widespread in the Central Coast Region, with 46 waterbodies listed as impaired for this pollutant on the 2010 List of Impaired Waterbodies List. Seventy percent of these nitrate listings occur in the three major agricultural watersheds: Salinas area (16 waterbodies), Pajaro River (5 waterbodies) and Santa Maria River (12 waterbodies). Other significant nitrate listings fall in small drainages in areas of intensive agriculture or greenhouse activity along the south coast, including Arroyo Paredon, Franklin Creek, Bell Creek, Los Carneros and Glen Annie creeks (CCRWQCB, 2009a)

59. The California Department of Public Health (CDPH) drinking water standard is 10 mg/L nitrate. The drinking water standard is not intended to protect aquatic life and Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation based on an evaluation of CCAMP data (CCRWQCB, 2009b). Water Board staff used this criteria to evaluate surface water quality impairment to aquatic life beneficial uses in the 2010 Impaired Waterbodies List.

60. In a broadly scaled analysis of land uses, nitrate pollution is associated with row crop agriculture. In addition, discharge from even a single agricultural operation can result in adjacent creek concentrations exceeding the drinking water standard and the much lower limits necessary to protect aquatic life. Many heavily urbanized creeks show only slight impacts from nitrate, with most urban impact associated with wastewater discharges. (CCAMP, 2010a).

61. Agricultural discharges result in significant nitrate pollution in the major agricultural areas of the Central Coast Region (CCAMP, 2010a). More than sixty percent of all sites from CCAMP and CMP combined datasets have average nitrate concentrations that exceed the drinking water standard and limits necessary to protect aquatic life (CCAMP, 2010b). Ten percent of all sites have average nitrate concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the following:

    a. Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek),

b. Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek),
c. Lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain),
d. Lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel),
e. Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek).

62. Dry season flows decreased over the last 5 years in some agricultural areas that have large amounts of tailwater runoff. Detailed flow analysis by the CMP showed that 18 of 27 sites in the lower Salinas and Santa Maria watersheds had statistically significant decreases in dry season flow over the first five years of the program. Some sites that show increasing concentrations of nitrate have coincident declining trends in flow, possibly due to reductions in tailwater (CCWQP, 2009a). CCAMP monitoring has detected declining flows at other sites elsewhere in the Region through the end of 2009 (CCAMP, 2010a), likely because of drought.

63. Some statistically significant changes in nitrate concentration are evident in CCAMP and CMP data. Several drainages are improving in water quality in the Santa Barbara area (such as Bell Creek, which supports agricultural activities) and on Pacheco Creek in the Pajaro watershed. However, in some of the most polluted waters, nitrate concentrations are getting worse at many sites (CCAMP, 2010a). In the lower Salinas and Santa Maria watersheds, flow volumes are declining at some sites (CCWQP, 2009a; CCAMP, 2010a), so at these locations nitrate loads may actually be improving in spite of increasing trends in concentrations.

64. Nitrate concentrations in Oso Flaco Lake exceed the levels that support aquatic life beneficial uses, threatening remaining populations of two endangered plants, marsh sandwort and Gambel's watercress. In 25 water samples taken from Oso Flaco Lake in 2000-2001 and 2007, levels of Nitrate/Nitrite (as N) averaged 30.5 mg/L with a minimum of 22.0 mg/L and a maximum of 37.1 mg/L (CCAMP, 2010a). Biostimulation in Oso Flaco Lake has caused the rapid and extreme growth of common wetland species, which are now crowding out sensitive species that have not become similarly vigorous (United States Department of the Interior Fish and Wildlife Service, 2010).

65. Agricultural discharges result in un-ionized ammonia concentrations at levels that are toxic to salmonids at some sites in areas dominated by agricultural activity (USEPA, 1999). The waterbodies where these sites are located are on the 2010 List of Impaired Waterbodies due to un-ionized ammonia, particularly in the lower Salinas and Santa Maria river areas (CCRWQCB, 2009).

Impacts to Surface Water – Toxicity and Pesticides

66. The Basin Plan general objective for toxicity states the following: "All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal or aquatic life." The Basin Plan general objective for pesticides states the following: "No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life."

67. Based on CCAMP, CMP, and other monitoring data, multiple pesticides and herbicides have been detected in Central Coast surface waterbodies (identified below). This is a violation of the Basin Plan general objective for pesticides. Many currently applied pesticides have not been tested for, and staff is not aware of any fungicide data for the Central Coast Region. Additional monitoring for individual pesticides is needed to identify changes in pesticide loading and also to identify concentration of toxic substance not previously identified.

2,4-D
alachlor
aldicarb
atrazine
azinphos-methyl
benefin
bentazon, sodium salt
bifenthrin
bromacil
bromoxynil octanoate
butylate
carbaryl
carbofuran
chlorpyrifos
chlorthal-dimethyl
cycloate
cyfluthrin
cypermethrin
DDVP
deltamethrin
diazinon
dicamba
esfenvalerate
ethalfluralin
ethoprop
fenamiphos
fenoxycarb
fenpropathrin
fipronil
glyphosate
hexazinone
hydramethylnon
imidacloprid
lambda cyhalothrin
linuron
malathion
MCPA
MCPA, dimethylamine salt
metalaxyl
methidathion
methiocarb
methomyl
methyl isothiocyanate
methyl parathion
oryzalin
oxadiazon
oxamyl
oxyfluorfen
paraquat dichloride
pendimethalin
permethrin
phorate
phosmet
prodiamine
prometon
prometryn
propanil
propargite
propiconazole
propoxur
propyzamide
pyriproxyfen
S.S.S-tributyl phosphorotrithioate
siduron
simazine
tebuthiuron

dicofol	metolachlor	terbuthylazine
dimethoate	metribuzin	tetrachlorvinphos
disulfoton	molinate	thiobencarb
diuron	naled	triallate
endosulfan	napropamide	triclopyr
EPTC	norflurazon	trifluralin

68. Multiple studies using Toxicity Identification Evaluations (TIEs) have shown that organophosphate pesticides and pyrethroid pesticides in Central Coast waters are likely causing toxicity to fish and invertebrate test organisms (CCAMP, 2010a, CCWQP, 2008; CCWQP, 2009a; Hunt et al., 2003, Anderson, et al. 2003; Anderson et al., 2006b. This is a violation of the Basin Plan general objective for toxicity.

69. Agricultural use of pesticides in the Central Coast Region and associated toxicity is among the highest in the State. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation (DPR), the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected to be toxic and lethal to aquatic life (42 percent), and the highest rate (by three-fold) of active ingredients applied (113 lbs/acre) (Starner, et al. 2006) .

70. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicated that toxicity resulting from agricultural discharges of pesticides has caused declining aquatic insect and macroinvertebrate populations in Central Coast streams (Anderson et al., 2003; Anderson et al., 2006a; Anderson et al., 2006b; Anderson et al., 2010). This is a violation of the Basin Plan general objective for toxicity.

71. The breakdown products of organophosphate pesticides are more toxic to amphibians than are the products themselves (Sparling and Fellers, 2007).

72. The lower Salinas and Santa Maria areas have more overall water column invertebrate toxicity than other parts of the Central Coast Region, with much of the toxicity explained by elevated diazinon and chlorpyrifos concentrations (CCAMP, 2010a, CCWQP, 2008; CCWQP, 2009a; Hunt et al., 2003, Anderson, et al. 2003; Anderson et al., 2006a). Some agricultural drains have shown toxicity every time the drains are sampled (CCAMP, 2010a).

73. The National Oceanic Atmospheric Administration National Marine Fisheries Service (NMFS) issued a Biological Opinion that concluded that US EPA's registration of pesticides containing chlorpyrifos, diazinon, and malathion is likely to

jeopardize the continued existence of 27 endangered and threatened Pacific salmonids and is likely to destroy or adversely modify designated critical habitat for 25 threatened and endangered salmonids because of adverse effects on salmonid prey and water quality in freshwater rearing, spawning, migration, and foraging areas (NMFS, 2008)

74. Three court-ordered injunctions impose limitations on pesticide use (including chlorpyrifos, diazinon, and malathion) within certain proximity of waterbodies to protect endangered species (DPR, 2010).

75. Creek bottom sediments are most consistently toxic in the lower Salinas and Santa Maria watersheds, areas dominated by intensive agricultural activity. Seventy percent of sites sampled for sediment in the Central Coast region have been toxic at least once (although sites selected for sediment toxicity sampling typically represent higher risk areas) (CCAMP, 2010a).

76. Research has shown pyrethroid pesticides are a major source of sediment toxicity in agricultural areas of the Central Coast Region (Ng et al., 2008; Anderson et al., 2006a, Phillips et al., 2006; Starner et al., 2006).

Impacts to Surface Water – Turbidity and Temperature

77. Turbidity is a cloudy condition in water due to suspended silt or organic matter. Waters that exceed 25 nephalometric turbidity units (NTUs) can reduce feeding ability in trout (Sigler et al., 1984). Elevated turbidity during the dry season is an important measure of discharge across bare soil, and thus can serve as an indicator of systems with heavy irrigation runoff to surface waters.

78. The Basin Plan requires that "Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses" (CCRWQCB, 1994).

79. Most CCAMP sites outside of agricultural areas have a median turbidity level less than 5 NTUs (CCAMP, 2010a). Many sampling sites that include significant agricultural discharge have turbidity levels that exceed 100 NTUs as a median value (CCAMP, 2010a).

80. Agricultural discharges cause and contribute to sustained turbidity throughout the dry season at many sampling sites dominated by agricultural activities. Resulting turbidity greatly exceeds levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds. The CMP detected some increasing trends in turbidity on the main stem of the Salinas River (CCRWQCB, 2009a; CCAMP, 2010a; CCWQP, 2009a).

81. Agricultural discharges and vegetation removal along riparian areas cause and contribute to water temperatures that exceed levels that are necessary to support salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. A good example of this is Orcutt Creek (CCAMP, 2010a), where upstream shaded areas are cooler than downstream exposed areas, in spite of lower upstream flows. Tailwater discharge and removal of riparian vegetation in downstream areas cause temperatures to rise above levels safe for trout. Several locations impacted by temperature are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers (CCAMP, 2010a).

82. Biological sampling shows that benthic biota are impaired in the lower Salinas and Santa Maria watersheds, and also shows that several measures of habitat quality, such as in-stream substrate and canopy cover, are poor compared to the upper watersheds and to other high quality streams in the Central Coast Region (CCWQP, 2009b; CCWQP, 2009c, CCWQP, 2009d; CCWQP, 2009e; CCAMP, 2010b)

83. Agricultural land use practices, such as removal of vegetation and stream channelization, and discharges from agricultural fields, can cause the deposition of fine sediment and sand over stream bottom substrate (Waters, 1995). This problem is especially prevalent in areas dominated by agricultural activity (lower Salinas and Santa Maria rivers) (CCWQP, 2009b; CCWQP, 2009c, CCWQP, 2009d; CCWQP, 2009e; CCAMP, 2010b). This deposition of fine sediment and sand in streams causes major degradation of aquatic life beneficial uses by eliminating pools and by clogging gravel where fish eggs, larvae, and benthic invertebrates that serve as a food source typically live (CCAMP, 2010b; Waters, 1995).

Impacts to the Marine Environment

84. The marine environment in the Central Coast Region is impacted by runoff from irrigated agriculture and other sources. Legacy pesticides have impacted the marine environment and are still found in sediment and tissue at levels of concern today (CCLEAN, 2007; Miller et al., 2007; Dugan, 2005, BPTCP, 1998). Currently applied pesticides are persistent in the aquatic environment, but initial testing has not found them in offshore areas of Monterey Bay (CCAMP, 2010b).

85. Two Marine Protected Areas (MPAs), Elkhorn Slough and Moro Cojo Slough, are heavily impacted by agricultural chemicals and activities in the vicinity. The Elkhorn Slough and Moro Cojo Slough MPAs are at very high to extremely high risk for additional degradation of beneficial uses. Other MPAs that are relatively near shore in agricultural areas are at medium risk for degradation of beneficial

uses; these include the South Santa Ynez River MPA, and the two Monterey Bay MPAs. Other MPAs that are not near agricultural areas are at medium to low risk from agricultural discharges (CCAMP, 2010b).

86. Nitrate loading from the Pajaro and Salinas Rivers to Monterey Bay has been found to be a potential driver of plankton blooms during certain times of year. Research shows a clear onshore to offshore gradient in nitrate load influence from rivers, and also shows overall increasing trends in loading from rivers, whereas nitrate loading from upwelling shows no trends (Lane, 2009; Lane et al., in review). Using infrared remote sensing, Monterey Bay Aquarium Research Institute researchers have documented bloom initiation immediately following "first flush" events just offshore Moss Landing and Pajaro River discharges, that then evolved into very large red tides that killed many sea birds (Ryan, 2009; Jessup et al., 2009). These bloom initiation events were documented in 2007 and 2008.

Impacts to Aquatic Habitat and Riparian and Wetland Areas

87. Riparian and wetland areas play an important role in protecting several of the beneficial uses designated in the Basin Plan. Agricultural activities have degraded, and threaten to degrade, these beneficial uses related to aquatic habitat, which include, but are not limited to:

    a. Ground Water Recharge;
    b. Fresh Water Replenishment;
    c. Warm Fresh Water Habitat;
    d. Cold Fresh Water Habitat;
    e. Inland Saline Water Habitat;
    f. Estuarine Habitat;
    g. Marine Habitat;
    h. Wildlife Habitat;
    i. Preservation of Biological Habitats of Special Significance;
    j. Rare, Threatened or Endangered Species;
    k. Migration of Aquatic Organisms;
    l. Spawning, Reproduction and/or Early Development;
    m. Areas of Special Biological Significance;

88. The Basin Plan contains requirements to protect aquatic habitat, including, but not limited to, Chapter 2, Section II Water Quality Objectives to Protect Beneficial Uses, and Chapter 5, Page V-13, V.G. Erosion and Sedimentation :A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip

shall be thirty feet, wherever possible as measured along the ground surface to the highest anticipated water line.

89. Riparian and wetland areas play an important role in achieving several water quality objectives established to protect specific beneficial uses. These include, but are not limited to, those water quality objectives related to natural receiving water temperature, dissolved oxygen, suspended sediment load, settleable material concentrations, chemical constituents, and turbidity.

90. The 2004 Agricultural Order required protection of beneficial uses including aquatic and wildlife habitat. This Order includes that requirement to achieve protection of aquatic life beneficial uses and to address water quality degradation that has occurred, in part, as a result of encroachment by agricultural land uses on riparian and wetland areas.

91. In particular, seasonal and daily water temperatures are strongly influenced by the amount of solar radiation reaching the stream surface, which is influenced by riparian vegetation (Naiman, 1992; Pierce's Disease/Riparian Habitat Workgroup (PDRHW), 2000.). Removal of vegetative canopy along surface waters threatens maintenance of temperature water quality objectives, which in turn negatively affects dissolved oxygen related water quality objectives, which in turn negatively affects the food web (PDRHW, 2000).

92. Riparian and wetland areas function to retain and recycle nutrients (National Research Council (NRC), 2002; Fisher and Acreman, 2004), thereby reducing nutrient loading directly to surface water or groundwater. Riparian and wetland areas trap and filter sediment and other wastes contained in agricultural runoff (NRC, 2002; Flosi et al., 1998; PDRHW, 2000; Palone and Todd,1998), and reduce turbidity (USEPA, 2009). Riparian and wetland areas temper physical hydrologic functions, protecting aquatic habitat by dissipating stream energy and temporarily allowing the storage of floodwaters (Palone and Todd, 1998), and by maintaining surface water flow during dry periods (California Department of Water Resources, 2003). Riparian and wetland areas regulate water temperature and dissolved oxygen, which must be maintained within healthy ranges to protect aquatic life (PDRHW, 2000). In the absence of human alteration, riparian areas stabilize banks and supply woody debris (NRC 2002), having a positive influence on channel complexity and in-stream habitat features for fish and other aquatic organisms (California Department of Fish and Game 2003).

93. Riparian areas are critical to the quality of in-stream habitat. Riparian vegetation provides woody debris, shade, food, nutrients and habitat important for fish, amphibians and aquatic insects (California Department of Fish and Game 2003). Riparian areas help to sustain broadly based food webs that help support a diverse assemblage of wildlife (NRC, 2002). More than 225 species of birds, mammals,

reptiles, and amphibians depend on California's riparian habitats (Riparian Habitat Joint Venture, 2004).

94. Riparian vegetation provides important temperature regulation for instream resources. In shaded corridors of the Central Coast region, temperatures typically stay under 20 degrees Celsius (within optimum temperature ranges for salmonids), but can rapidly increase above 20 degrees Celsius when vegetation is removed. Orcutt Creek in the lower Santa Maria watershed is an example where upstream shaded areas remain cooler than downstream exposed areas, in spite of lower upstream flows (CCAMP, 2010a).

95. Land management and conservation agencies describe three vegetated zones within a riparian buffer that can provide water quality protection (NRCS, 2006; Welsch, 1991, Tjaden and Weber). These zones are described below:
    a. Zone 1 – The goal for this zone is to control temperature and turbidity discharges by establishing a mix of trees and shrubs that provide shade and streambank stability. A mix of native woody species that vary from large tree species as they mature to understory trees and shrubs will provide canopy cover and shading next to the water.
    b. Zone 2 – The goal for this zone is to establish a mix of trees and shrubs that will absorb and treat waterborne nutrients and other pollutants and allow water to infiltrate into the soil.
    c. Zone 3 – The goal for this zone is to act as a transitional zone between cropland and zones 1 and 2, serving to slow flows, disperse flows out into more diffuse, sheet flow, and promote sediment deposition. The use of stiff multi-stemmed grasses and forbs are preferred and will help disperse concentrated flows.

96. CCAMP and CMP bioassessment data show that streams in areas of heavy agricultural use are typically in poor condition with respect to benthic community health and that habitat in these areas is often poorly shaded, lacking woody vegetation, and heavily dominated by fine sediment. Heavily sedimented stream bottoms can result from the immediate discharge of sediment from nearby fields, the loss of stable, vegetated stream bank habitat, the channelization of streams and consequent loss of floodplain, and from upstream sources.

97. Up to approximately 43 percent of the federally threatened and endangered species rely directly or indirectly on wetlands for their survival (United States Environmental Protection Agency, 2008). Of all the states, California has the greatest number of at-risk animal species (15) and, by far, the greatest number of at-risk plant species (104) occurring within isolated wetlands (Comer et al., 2005).

98. California has lost an estimated 91 percent of its historic wetland acreage, the highest loss rate of any state. Similarly, California has lost between 85 and 98

percent of its historic riparian areas (State Water Resources Control Board, 2008). Owners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops (Braatne et al., 1996; Riparian Habitat Joint Venture, 2004).

99. The California Wetlands Conservation Policy (Executive Order W-59-93), also known as "the No Net Loss Policy," adopted by Governor Wilson in 1993, established the State's intent to develop and adopt a policy framework and strategy to protect California's unique wetland ecosystems. One of the goals of this policy is to ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.

100. Real and/or perceived incompatible demands between food safety and environmental protection are a major issue in the Central Coast Region. Technical Assistance Providers have reported that growers have removed vegetated management practices intended to protect water quality (in some cases, after receiving substantial public funds to install vegetated management practices).

101. According to a spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches to prevent pollution from pathogens such as the O157:H7 bacteria. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management practices removed (RCDMC, 2007). According to a follow-up spring 2009 survey by the Resource Conservation District of Monterey County, growers are being told by their auditors and/or buyers that wetland or riparian plants are a risk to food safety (RCDMC, 2009).

102. Riparian vegetation and vegetated buffer zones are critically important to prevent the transport of sediment and bacteria, which may include the downstream transport of O157:H7 bacteria. Tate et al. (2006) tested vegetated buffers on cattle grazing lands and found that they are a very effective way to reduce inputs of waterborne E. coli into surface waters. Data indicates that the major source of O157:H7 bacteria are cattle, not wildlife (RCDMC, 2006). In many agricultural areas of the Central Coast Region, cattle operations are located upstream of irrigated agricultural fields. Therefore, the removal of riparian and wetland vegetation and their buffer zones increases the transport of pathogens such as O157:H7 and the risk of food contamination. The removal of riparian and wetland vegetation for food safety purposes is not warranted, is not supported by the literature, and may increase the risk of food contamination.

103. Vegetated riparian areas provide greater environmental value than unvegetated floodplains or cropped fields. Riparian forests provide as much as 40 times the water storage of a cropped field and 15 times that of grass turf (Palone and Todd, 1998) Agricultural floodplains are approximately 80 to 150 percent more erodible than riparian forest floodplains (Micheli et al., 2004) and riparian forest floodplains serve a valuable function by trapping sediment from agricultural fields (National Resource Council, 2002; Flosi and others, 1998; PDRHW 2000; Palone and Todd 1998).

104. Riparian and wetland areas are an effective tool in improving agricultural land management. Wide riparian areas act as buffers to debris that may wash onto fields during floods, thereby offsetting damage to agricultural fields and improving water quality (Flosi et al., 1998; PDRHW, 2000).

105. Exotic plant species exclude native riparian and wetland vegetation by out-competing native species for habitat. Additionally, exotic plants do not support the same diversity of wildlife native to riparian forests, often use large amounts of water, and can exist as monocultural stands of grass. Grass habitat is very different from the complex habitat structure provided by a diversity of riparian trees and shrubs, and results in habitat changes that affect the aquatic based food web (California Department of Fish and Game, 2003).

MANAGEMENT PRACTICE IMPLEMENTATION

106. Commercial agriculture is an intensive use of land. Relatively sophisticated agronomic and engineering approaches are available and necessary to minimize the discharge of waste from irrigated lands, including sediment, nutrients, and pesticides that impact water quality and beneficial uses of waters of the State. Traditionally, conservation practices available to Dischargers were developed for irrigation efficiency or for erosion control, and not necessarily for water quality protection. To achieve water quality protection and improvement, Dischargers are responsible for selecting and effectively implementing management strategies to resolve priority water quality problems associated with the specific operation and receiving water, utilize proper management practice design and maintenance, and implement effectiveness monitoring.

107. Dischargers are responsible for implementing management measures to achieve water quality improvement, including practices and projects at the scale of a single farm, or cooperatively among multiple farms in a watershed or sub watershed.

108. 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 in compliance

with this Order. Elements of the Farm Plan include irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for implementation of practices and an evaluation of progress in achieving water quality improvement. The development and implementation of Farm Plans was a requirement of the 2004 Agricultural Order. This Order renews the requirement to prepare the Farm Plan, and adds new conditions requiring each discharger to verify the implementation of management practices focused on resolving water quality issues and for a subset of dischargers considered a higher threat to water quality to conduct individual discharge monitoring to verify the effective implementation of management practices.

109. Dischargers can significantly reduce the potential impact from agricultural discharges by the effective implementation of management practices identified in Farm Plans focused on priority water quality issues related to the specific operation and watershed.

110. Individual on-farm water quality monitoring is critical to adaptively manage and effectively implement practices to protect water quality. The data and reporting will inform the Discharger, the Water Board, and the public regarding compliance with this Order, and increases the potential success in adapting management practices to address priority water quality issues. Dischargers participating in on-farm water quality monitoring have reported, in some cases, significant reduction or elimination of their discharge of waste through effective and adaptive management practice implementation.

111. Agricultural discharges, especially surface irrigation runoff, have the potential to transport sediments and associated waste constituents that exceed water quality standards. Minimizing irrigation runoff is an effective way to minimize and/or eliminate agricultural discharges of waste to waters of the State.

112. Agricultural water quality research identifies the importance of minimizing the amount of water runoff coming from farms. Irrigation runoff occurs when the application rate of the irrigation system exceeds the infiltration rate of the soil due to numerous factors, including poor irrigation efficiency. The percent of applied water lost to runoff may start off low, and increase towards the end of longer irrigations, or with frequent irrigation where soil is saturated. Fields with soils susceptible to low infiltration rates may lose 5 percent to 30 percent or more of their applied water to runoff.

113. Applying fertilizer, soil amendments, or agricultural products directly through an irrigation system (fertigation) increases nitrate levels in irrigation water. Runoff from fertigations is likely to be extremely high in nitrate concentrations. Agricultural research conducted in the Pajaro Valley and Salinas Valley watersheds has

identified nitrate values in agricultural tailwater and drainage ditches exceeding 100 mg/L nitrate in some cases (more than ten times the drinking water standard, and likely more than 100 times the level necessary to protect aquatic life) (Anderson, 2003).

114. Agricultural studies document the common over-application of fertilizers, and fertilizer and animal manure are the most dominant and widespread nitrate sources to groundwater (Harter, 2009; Kitchen, 2008; Lawrence Livermore National Lab GAMA Studies Llagas subbasin, 2005). Effective irrigation and nutrient management practices to reduce the concentration of nutrients in irrigation runoff, deep percolation, and stormwater, include but are not limited to, irrigation efficiency to reduce runoff and deep percolation, nutrient budgeting to optimize fertilizer application and eliminate excessive nutrient applications, and techniques to trap nutrients between crop growing seasons and during intense periods of rainfall.

115. Agricultural studies and practices demonstrate that minimizing the production of polluted tailwater through irrigation efficiency and nutrient management practices and keeping runoff from leaving the farm is cost effective (Meals, 1994). Improving irrigation water application according to real time soil moisture data has resulted in some of the lowest concentrations of nutrients in percolating waters, confirming that irrigation efficiency is a key factor in reducing leaching of nutrients (United Water Conservation District, 2007).

116. Agricultural land uses can disrupt the natural vegetation-soil cycles and biota diversity, keeping the soil surface unprotected and vulnerable to erosive forces (wind and rain), which increases the amount of sediments dispersed and transported from agricultural lands into surface water (USEPA, 2003).

117. Agricultural mechanization and tillage of soil and land for bed preparation, crop maintenance and pest control, can destroy the soil structure and degrade the land, which increases the amount of sediment and associated waste constituents discharged into surface water (Fawcett, 2005).

118. Managing uncropped areas, minimizing and protecting bare soil and heavy use areas and unpaved road from concentrated flows of water, and implementing practices to detain or filter sediment and runoff before it leaves agricultural operations are effective ways to reduce soil erosion and capture sediment before it enters waterways, where it can cause water quality impairments downstream (ANR Publications 8124 and 8071).

119. Stormwater runoff from irrigated lands often results in significant erosion and the discharge of sediment, nutrients, and pesticides. Effective erosion control and sediment control management practices include but are not limited to cover crops, filter strips, and furrow alignment to reduce runoff quantity and velocity, hold fine

particles in place, and increase filtration to minimize the impacts to water quality (USEPA, 1991). Crops grown using impervious plastic can be particularly problematic as they often result in significantly increased irrigation runoff volumes and velocities in agricultural furrows and ditches that may drain to waters of the State.

120. Education and technical assistance is an important tool in advancing the implementation of new effective management practices that protect and enhance water quality.

AGRICULTURAL REGULATORY PROGRAM IMPLEMENTATION

121. The Central Coast Water Board is maximizing regulatory effectiveness by identifying and prioritizing actions that address the most significant agricultural water quality problems in the Central Coast Region, including nitrate in groundwater from discharge related to excess fertilizer application, the discharge of waste in agricultural tailwater, surface water toxicity resulting from pesticides, surface water nutrients from fertilizer, increasing salinity, sediment discharge, and degradation of aquatic habitat.

122. The Central Coast Water Board is addressing priority agricultural water quality issues, on a watershed basis in coordination with other Water Board programs and efforts, focused in the most intensive agricultural areas of the region including the Salinas, Pajaro, and Santa Maria watersheds. In addition, Central Coast Water Board staff will assess and track progress towards specific measures of water quality improvement, and adapt to the feedback the tracking provides.

123. The Central Coast Water Board will evaluate compliance of individual Dischargers with the terms and conditions of this Order based on enrollment information, threat of water quality impairment, content of technical reports (including Annual Compliance Document, Farm Plan, Irrigation and Nutrient Management Plan, and Water Quality Buffer Plan), prioritized inspections, and water quality monitoring data. In addition to the determination of noncompliance and water quality impairment, the Central Coast Water Board will enforce the conditions of this Order in a manner similar to enforcement of WDRs and consistent with the State Water Board's Enforcement Policy, focusing on the highest priority water quality issues and most severely impaired waters.

124. The Central Coast Water Board will consider the history of compliance and violations and progress made toward compliance and water quality improvement demonstrated by individual Dischargers when determining potential enforcement actions. In some cases, the Central Coast Water Board may terminate coverage under this Order and require the Discharger to submit a ROWD and comply with the Water Code pursuant to individual WDRs.

PART B. RELEVANT PLANS, POLICIES, AND REGULATIONS

Water Quality Control Plan

The *Water Quality Control Plan for the Central Coast Region* (Basin Plan) was adopted by the Central Coast Water Board in 1975 and is periodically revised. Tables 1A and 1B include a summary of Narrative and Numeric Water Quality Objectives. The Basin Plan is available by contacting the Central Coast Water Board at (805) 549-3147 or by visiting the Central Coast Water Board's website at: http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/

Other Relevant Plans, Policies, and Regulations

State Water Resources Control Board, Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California,* October 1968.

State Water Resources Control Board, *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California*, June 1972.

State Water Resources Control Board, Resolution No. 74-43, *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*, May 1974.

State Water Resources Control Board, Resolution No. 88-63, *Sources of Drinking Water Policy*, May 1988.

State Water Resources Control Board, *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program,* May 2004.

State Water Resources Control Board, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)*, February 2005

State Water Resources Control Board, *Water Quality Control Plan for Ocean Waters of California (CA Ocean Plan),* September 2009.

State Water Resources Control Board, *Water Quality Enforcement Policy,* May 20, 2010.

US EPA, *National Toxics Rule*, 40 CFR 131.36, 57 FR 60848, December 1992.

US EPA, *California Toxics Rule*, 40 CFR 131.38, 65 FR 31682, May 2000.

Table 1A. Narrative and Numeric Water Quality Objectives for Surface Water.

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
TOXICITY	
Toxicity *(BPGO, III-4)* *Narrative Objective:* All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. *Indicators of Narrative Objective:* Chemical concentrations in excess of toxic levels for aquatic life including but not limited to the following: Chlorpyrifos 0.025 ug/L Diazinon 0.14 ug/L *(Source: Sipmann and Finlayson 2000)*	All Surface Waters
TOXICANTS	
Nutrients	
Ammonia, Total (N) *(BPSO, Table 3.3)* >30 mg/L NH4-N	AGR
Ammonia, **Un-ionized** *(BPGO, III-4)* 0.025 mg/L NH3 as N	All Surface Waters
Nitrate *(a. BPSO, Table 3-2* *b. BPSO, Table 3-3)* a. 10 mg/L NO3-N b. >30 mg/L NO3-N	a. MUN b. AGR
Organics	
Chemical Constituents *(BPSO, III-5 and* *Table 3-2)* Waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Article 4, Chapter 15,	MUN

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Section 64435, Tables 2 and 3 as listed in Table 3-2.	
Chemical Constituents *(BPSO, III-5 and Table 3-3)* Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-4	AGR
Chemical Constituents *(BPSO, III-10, Table 3-5, Table 3-6)* Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5 or Table 3-6.	COLD, WARM, MAR
Oil and Grease *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	All Surface Waters
Organic Chemicals *(BPSO, III-5 and Table 3-1)* All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.	MUN
Other Organics *(BPGO, III-3)* **Phenol** *(BPSO, III-5)* Waters shall not contain organic substances in concentrations greater than the following:	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Methylene Blue Activated Substances < 0.2 mg/L Phenols < 0.1 mg/L Phenol (MUN) ≤ 1.0 µg/L PCB's < 0.3 µg/L Phthalate Esters < 0.002 µg/L	
Metals	
Chromium *(BOSP, III-12)* ≤ 0.01 mg/L	SHELL
Cadmium *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Chromium *(BPGO, III-11)* ≤ 0.05 mg/L	COLD, WARM
Copper *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.01 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Lead *(BPGO, III-11)* ≤ 0.03 mg/L	COLD, WARM
Mercury *(BPGO, III-11)* ≤ 0.0002 mg/L	COLD, WARM
Nickel *(BPGO, III-11)* ≤ 0.4 mg/L in hard water or	COLD, WARM

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
≤.0.1 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	
Zinc *(BPGO, III-11)* ≤ 0.2 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
CONVENTIONALS	
Biostimulatory Substances *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. *Indicators of Narrative Objective:* Indicators of biostimulation include chlorophyll-a, dissolved oxygen, phosphorous, and nitrate. Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation. *(Source: Central Coast Water Board. April 2009. Central Coast Ambient Monitoring Program Technical Paper: Interpreting Narrative Objectives for Biostimulatory Substances Using the Technical Approach for Developing California Nutrient Numeric Endpoints)*	All Surface Waters
Boron *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 0.2 – 0.5 mg/L.	Specific Surface Waters
Chloride *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 150-1400 mg/L.	Specific Surface Waters
Color *(BPGO, III-3)* Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
greater than 15 units or 10 percent above natural background color, whichever is greater.	
Conductivity *(BPSO, III-8, Table 3-3)* >3.0 mmho/cm	AGR
Dissolved Oxygen (DO) *(BPGO, III-2)* Mean annual DO $\geq$ 7.0 mg/L Minimum DO $\geq$ 5.0 mg/L	All Ocean Waters
Dissolved Oxygen *(BPGO, III-4)* For waters not mentioned by a specific beneficial use: DO $\geq$ 5.0 mg/L DO Median values $\geq$ 85 percent saturation	All Surface Waters
Dissolved Oxygen *(BPSO, III-10)* DO $\geq$ 7.0 mg/L	COLD, SPWN
Dissolved Oxygen *(BPSO, III-10)* DO $\geq$ 5.0 mg/L	WARM
Floating Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters
pH *(BPSO, III-10)* The pH value shall not be depressed below 7.0 nor above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.	COLD, WARM,

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
pH ***(****BPSO, III-10)* The pH value shall not be depressed below 7.0 or raised above 8.5[1]. Changes in normal ambient pH levels shall not exceed 0.2 units.	MAR
pH ***(****BPSO, III-5)* The pH value shall not be depressed below 6.5 nor above 8.3.	MUN, REC-1, REC-2, AGR
Settleable Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.	All Surface Waters
Sodium *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 20-250 mg/L.	
Sulfate *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-700 mg/L.	
Suspended Sediment *(BPGO, III-3)* *Narrative Criteria:* The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	All Surface Waters
Suspended Material *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Taste and Odor *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.	All Surface Waters
Temperature *(BPGO, III-3)* *Narrative Criteria:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.	All Surface Waters
Temperature *(BPGO, III-4)* *Narrative Objective:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. *a) Indicators of Narrative Objective for COLD Habitat:* **Coho** December - April 48-54 ºF 7-DAM[2] 56-58 ºF 1-DAM May – November 57-63 ºF 7-DAM 68-70 ºF 1-DAM **Steelhead** December - April 55-57 ºF 7-DAM 56-58 ºF 1-DAM May – November 56-63 ºF 7-DAM 70-73 ºF 1-DAM *(Source: Hicks 2000)* *b) Indicators of Narrative Objective for WARM Habitat:*	All Surface Waters a) COLD

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Stickleback Upper optimal limit = 75 ºF (This temperature is also the low end of the upper lethal limit for steelhead) *(Source: Moyle 1976)* Note: 7-DAM refers to the rolling arithmetic average of seven consecutive daily maximum temperatures. 1-DAM refers to the highest daily maximum temperature.	b) WARM
Temperature *(BPSO, III-10)* At no time or place shall the temperature be increased by more than 5°F above natural receiving water temperature.	COLD, WARM
Total Dissolved Solids (TDS) *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-250 mg/L.	
Turbidity *(BPGO, III-3 and* *WDR R3-2006-0032)* Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits in receiving water: a. Five NTU, where natural turbidity is less than 25 NTU b. Twenty percent, where natural turbidity is between 25 and 50 NTU. c. Ten NTU, where natural turbidity is between 50 and 100 NTU. d. Ten percent, where natural turbidity is greater than 100 NTU.	All Surface Waters
PATHOGEN INDICATORS	
Fecal Coliform *(BOSP,III-5)* Log mean 200 MPN/100mL. Max 400 MPN/100mL.	REC-1
Fecal Coliform *(BOSP,III-10)* Log mean 2000 MPN/100mL.	REC-2

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Max 4000 MPN/100mL.	
E. coli *(USEPA)* Max 235 MPN/100 mL	REC-1
Total Coliform *(BOSP,III-12)* Median $\leq$ 70/100 MPN/100mL Max 230 MPN/100 mL	SHELL

Table 1B. Narrative and Numeric Water Quality Objectives for Groundwater.

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
TOXICANTS	
Chemical Constituents *(BPSO, III-14)* Groundwaters shall not contain concentrations of chemical constituents in excess of federal or state drinking water standards.	MUN
Chemical Constituents *(BPSO, III-14 and Tables 3-3 and 3-4)* Groundwaters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4.	AGR
Total Nitrogen *(BPSO, III-15 and Table 3-8)* Groundwater Basin Objectives for Median values range from 1-10 mg/L as N.	Specific Groundwater Basins

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
CONVENTIONALS	
Total Dissolved Solids (TDS) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 100-1500 mg/L TDS.	Specific Groundwater Basins
Chloride (Cl) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 20-430 mg/L Cl.	Specific Groundwater Basins
Sulfate (SO_4) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-1025 mg/L SO_4.	Specific Groundwater Basins
Boron (B) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 0.1-2.8 mg/L B.	Specific Groundwater Basins
Sodium (Na) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-730 mg/L.	Specific Groundwater Basins

Acronyms:
BP = Basin Plan or Water Quality Control Plan for the Central Coast Region
BPGO = Basin Plan General Objective
BPSO = Basin Plan Specific Objective related to a designated beneficial use
TMDL = Specific Objective related to an adopted Total Maximum Daily Load
WDR = Waste Discharge Requirements
SB = State Board established guideline
USEPA = US Environmental Protection Agency
CCAMP = Central Coast Ambient Monitoring Program
SWAMP = Surface Water Ambient Monitoring Program
MCL = Maximum Contaminant Level, California drinking water standards set forth in California Code of Regulations, Title 22.
NTU = Nephelometric Turbidity Unit
mg/L = milligram/Liter
MPN = Most Probable Number

PART C. DEFINITIONS

The following definitions apply to Order No. R3-2010-0006, and Monitoring and Reporting Program as related to discharges of waste from irrigated lands. The terms are arranged in alphabetical order. All other terms not explicitly defined for the purposes of this Order and Monitoring and Reporting Program shall have the same definitions as prescribed by California Water Code Division 7 or are explained within the Order or the Monitoring and Reporting Program documents.

1. Anti-degradation. The State Water Board established a policy to maintain high quality waters of the State - Resolution 68-16 "*Statement of Policy with Respect to Maintaining High Quality Waters in California*." Resolution 68-16 requires existing high quality water to be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of water, and will not result in water quality less than that prescribed in the policies. Regional Water Boards are required to ensure compliance with Resolution 68-16. The Central Coast Water Board must require discharges to be subject to *best practicable treatment or control* of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with maximum benefit to the people of the State. Resolution 68-16 has been approved by the USEPA to be consistent with the federal anti-degradation policy.

2. Aquatic Habitat. The physical, chemical, and biological components and functions of riparian areas and wetlands and their buffer zones.

3. Back flow Prevention. Back flow prevention devices are installed at the well or pump to prevent contamination of groundwater or surface water when fertilizers, pesticides, fumigants, or other chemicals are applied through an irrigation system. Back flow prevention devices used to comply with this Order must be those approved by USEPA, DPR, CDPH, or the local public health or water agency.

4. Basin Plan. The Basin Plan is the Central Coast's Region Water Quality Control Plan. The Basin Plan describes how the quality of the surface and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan includes beneficial uses, water quality objectives, and a program of implementation.

5. Beneficial Uses. The Basin Plan establishes the beneficial uses to be protected in the Central Coast Region. Beneficial uses for surface water and groundwater are divided into twenty-four standard categories identified below. The following beneficial uses have been identified in waterbodies within the Region:

- agricultural supply (AGR)
- aquaculture (AQUA)
- areas of special biological significance (ASBS)
- cold freshwater habitat (COLD)
- commercial and sportfishing (COMM)
- estuarine habitat (EST)
- freshwater replenishment (FRESH)
- groundwater recharge (GWR)
- hydropower generation (POW)
- industrial process supply (PRO)
- industrial service supply (IND)
- inland saline water habitat (SAL)
- marine habitat (MAR)
- municipal and domestic supply (MUN)
- migration of aquatic organisms (MIGR)
- navigation (NAV)
- non-contact recreation (REC2)
- preservation of biological habitats of special significance (BIOL)
- rare, threatened or endangered species (RARE)
- shellfish harvesting (SHELL
- spawning, reproduction, and development (SPWN)
- warm freshwater habitat (WARM)
- water contact recreation (REC1)
- wildlife habitat (WILD)

6. Chemigation. The application of pesticides, fertilizers, fumigants or other chemicals through an irrigation system.

7. Commercial. Irrigated lands producing commercial crops are those operations that have one or more of the following characteristics:

    a. The property owner/operator holds a current Operator Identification Number/Permit Number for pesticide use reporting;
    b. The crop is sold, including but not limited to (1) an industry cooperative, (2) harvest crew/company, or (3) a direct marketing location, such as Certified Farmers Markets;.
    c. The federal Department of Treasury Internal Revenue Service form 1040 Schedule F Profit or Loss from Farming is used to file federal taxes.

8. Concentration. The relative amount of a substance mixed with another substance. An example is 5 parts per million (ppm) of nitrogen in water or 5 mg/L.

9. Discharge. A release of a waste to waters of the State, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides.

10. Discharger. The owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater.

11. Discharges of Waste from Irrigated Lands. Surface water and groundwater discharges, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills containing waste.

12. Ephemeral Stream. A channel that holds water during and immediately after rain events.

13. Erosion. The wearing away of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

14. Erosion and Sediment Control Practices. Practices used to prevent and reduce the amount of soil and sediment entering surface water in order to protect or improve water quality.

15. Environmental Justice. Providing equal and fair access to a healthy environment for communities of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies; and proactive efforts to take into account existing environmental injustices and to protect from new or additional environmental hazards and inequitable environmental burdens;

16. Exceedance. A reading using a field instrument or a detection by a California State-certified analytical laboratory where the detected result is above an applicable water quality standard for the parameter or constituent. For toxicity tests, an exceedance is a result that is statistically lower than the control sample test result.

17. Farm. For the purposes of this Order, a tract of land or operation where commercial crops are produced made up of a parcel(s) that have a similar operator or landowner(s).

18. Farm Water Quality Management Plan (Farm Plan). The Farm Plan is a document that contains, at a minimum, identification of management practices that are being or will be implemented to protect and improve water quality by addressing irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for the effective implementation of management practices and verification monitoring to determine compliance with the requirements of this Order (schedules, milestones, effluent limits, etc.). Consistent with the Conditional

Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands adopted by the Board in July 2004 (Order No. R3-2004-0117), this Order requires Dischargers to develop and implement a Farm Plan focused on the priority water quality issues associated with a specific operation and the priority water quality issues associated with a specific watershed or subwatershed.

19. Fertigation. The application of fertilizers through an irrigation system.

20. Freshwater Habitat. Uses of water that support cold or warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

21. Groundwater. The supply of water found beneath the earth's surface, usually in aquifers, which supply wells and springs.

22. Groundwater Protection Practices. Management practices designed to reduce or eliminate transport of nitrogen, pesticides, and other waste constituents into groundwater.

23. Integrated Pest Management Program (IPM). A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as encouraging biological control, use of resistant varieties, or adoption of alternative cultivating, pruning, or fertilizing practices or modification of habitat to make it incompatible with pest development. Pesticides are used only when careful field monitoring indicates they are needed according to pre-established guidelines or treatment thresholds.

24. Intermittent Stream. A stream that holds water during wet portions of the year.

25. Irrigated Lands. For the purpose of this Order, irrigated lands include lands where water is applied for the purpose of producing commercial crops and include, but are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors, that do not have point-source type discharges, and are not currently operating under individual Waste Discharge Requirements (WDRs). Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Order.

26. Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

27. Irrigation Management Practices. Management practices designed to improve irrigation efficiency and reduce the amount of irrigation return flow or tailwater, and

associated degradation or pollution of surface and groundwater caused by discharges of waste associated with irrigated lands.

28. Irrigation Runoff or Return Flow. Surface and subsurface water that leaves the field following application of irrigation water. See also, Tailwater.

29. Irrigation System Distribution Uniformity. Irrigation System Distribution Uniformity is a measure of how uniformly irrigation water is applied to the cropping area, expressed as a percentage. A nonuniform distribution can deprive portions of the crop of sufficient irrigation water, and can result in the excessive irrigation leading to water-logging, plant injury, salinization, irrigation runoff and transport of chemicals to surface water and groundwater.

30. Landowner. An individual or entity who has legal ownership of a parcel(s) of land. For the purposes of this Order, the landowner is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the property.

31. Load. The concentration or mass of a substance discharged over a given amount of time, for example 10 mg/L/day or 5 Kg/day, respectively.

32. Monitoring. Sampling and analysis of receiving water quality conditions, discharge water quality, aquatic habitat conditions, effectiveness of management practices, and other factors that may affect water quality conditions to determine compliance with this Order or other regulatory requirements. Monitoring includes but is not limited to: surface water or groundwater sampling, on-farm water quality monitoring undertaken in connection with agricultural activities, monitoring to identify short and long-term trends in in-stream water quality or discharges from sites, inspections of operations, management practice implementation and effectiveness monitoring, maintenance of on-site records and management practice reporting.

33. Nitrate Hazard Index. In 1995, the University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index). The purpose of the Nitrate Hazard Index is to identify agricultural fields with the highest vulnerability for nitrate pollution to groundwater, based on soil, crop, and irrigation practices. The hazard index number can range from 1 through 80 with the hazard increasing with increasing hazard index number. The WRC states that an index number greater than 20 indicates greater risk for nitrate pollution to groundwater and should receive careful attention. http://www.lib.berkeley.edu/WRCA/WRC/wqp_hazard.html

34. Nitrate Loading Risk Factor. 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, and c) Irrigation Water Nitrate Concentration.

35. Non-point Source Pollution (NPS). Diffuse pollution sources that are generally not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common non-point sources are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

36. Non-Point Source Management Measures. To combat NPS pollution, the State Water Board NPS Program adopted management measures as goals for the reduction of polluted runoff generated from five major categories, including agriculture. Management measures address the following components for agriculture: Erosion and sediment control; facility wastewater and runoff from confined animal facilities; nutrient management; pesticide management; irrigation water management; grazing management, and groundwater protection.

37. Non-Point Source Management Practices. Methods or practices selected by entities managing land and water to achieve the most effective, practical means of preventing or reducing pollution from diffuse sources, such as wastes carried off the landscape via urban runoff, excessive hill, slope or streambed and bank erosion, etc. Management Practices include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Management Practices can be applied before, during, and after pollution-causing activities to prevent, reduce, or eliminate the introduction of wastes into receiving waters.

38. Nutrient. Any substance assimilated by living things that promotes growth.

39. Nutrient Management Practices. Management practices designed to reduce the nutrient loss from agricultural lands, which occur through edge-of-field runoff or leaching from the root zone.

40. Operator. Person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, a farm/ranch manager, lessee or sub-lessee. The operator is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the operation.

41. Operation. A distinct farming business, organized as a sole proprietorship, partnership, corporation, and/or cooperative.

42. Operational Spill. Irrigation water that is diverted from a source such as an irrigation well or river, but is discharged without being delivered to or used on an individual field.

43. Perennial Stream. A stream that holds water throughout the year.

44. Pesticide Management Practices. Management practices designed to reduce or eliminate pesticide runoff into surface water and groundwater.

45. Point Source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which wastes are or may be discharged.

46. Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

47. Quality of the Water. The "chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use" as defined in the California Water Code Sec. 13050(g).

48. Receiving Waters. Surface waters or groundwater that receive or have the potential to receive discharges of waste from irrigated lands.

49. Requirements of Applicable Water Quality Control Plans. Water quality objectives, prohibitions, Total Maximum Daily Load (TMDL) Implementation Plans, or other requirements contained in the Basin Plan, as adopted by the Central Coast Water Board and approved according to applicable law.

50. Riparian Area. Vegetation affected by the surface water or groundwater of adjacent perennial or intermittent streams, lakes or other waterbodies. Vegetation species are distinctly different from adjacent areas or are similar to adjacent areas but exhibit more vigorous or robust growth forms indicative of increased soil moisture. Riparian areas may also include floodplains. Floodplains are critical areas for retaining floodwaters, allowing for sediment deposition and the natural movement of riparian areas, as well as space for colonization of new riparian and wetland vegetation necessary due to natural meandering. (Dall et. al. 1997, p.3)

51. Source of Drinking Water. Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan and/or as defined in SWRCB Resolution No. 88-63.

52. Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

53. Subsurface Drainage. Water generated by installing drainage systems to lower the water table below irrigated lands. The drainage can be generated by subsurface drainage systems, deep open drainage ditches or drainage wells.

54. Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions; a major transporter of non-point source wastes in rivers, streams, and lakes.

55. Tailwater. Runoff of irrigation water from the lower end of an irrigated field. See also, Irrigation Runoff or Return Flow.

56. Tile Drains. Subsurface drainage which removes excess water from the soil profile, usually through a network of perforated tile tubes installed 2 to 4 feet below the soil surface. This lowers the water table to the depth of the tile over the course of several days. Drain tiles allow excess water to leave the field. Once the water table has been lowered to the elevation of the tiles, no more water flows through the tiles.

57. Total Maximum Daily Load (TMDL). The condition of an impaired surface waterbody (on the List of Impaired Waterbodies) that limits the amount of pollution that can enter the waterbody without adversely affecting its beneficial uses, usually expressed as a concentration (e.g., mg/L) or mass (e.g., kg); TMDLs are proportionally allocated among dischargers to the impaired surface waterbody.

58. Total Nitrogen Applied. Total nitrogen applied includes nitrogen in any product, form or concentration) including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water; Reported in units of nitrogen per crop, per acre for each farm/ranch or nitrate loading risk unit;

59. Waste. "Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal" as defined in the California Water Code Sec. 13050(d). "Waste" includes irrigation return flows and drainage water from agricultural operations containing materials not present prior to use. Waste from irrigated agriculture includes *earthen materials* (such as soil, silt, sand, clay, rock), *inorganic materials* (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and *organic materials* such as pesticides.

60. Water Quality Buffer. A water quality protection zone surrounding perennial or intermittent channels with riparian vegetation and/or riparian functions that support beneficial uses and protect water quality.

61. Water Quality Control. The "regulation of any activity or factor which may affect the quality of the waters of the State and includes the prevention and correction of water pollution and nuisance" as defined in the California Water Code Sec. 13050(i).

62. Water Quality Criteria. Levels of water quality required under Sec. 303(c) of the Clean Water Act that are expected to render a body of water suitable for its designated uses. Criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes. The *California Toxics Rule* adopted by USEPA in April 2000, sets numeric Water Quality Criteria for non-ocean waters of California for a number of pollutants. See also, Water Quality Objectives.

63. Water Quality Objectives. "Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area," as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of Section 303 of the Clean Water Act. Specific Water Quality Objectives relevant to this Order are identified in this Appendix A in Tables 1A and 1B.

64. Water Quality Standard. Provisions of State or Federal law that consist of the beneficial designated uses or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an anti-degradation statement. Water quality standards includes water quality objectives in the Central Coast Water Board's Basin Plan, water quality criteria in the California Toxics Rule and National Toxics Rule adopted by USEPA, and/or water quality objectives in other applicable State Water Board plans and policies. Under Sec. 303 of the Clean Water Act, each State is required to adopt water quality standards.

65. Waters of the State. "Any surface water or groundwater, including saline waters, within the boundaries of the State" as defined in the California Water Code Sec. 13050(e), including all waters within the boundaries of the State, whether private or public, in natural or artificial channels, and waters in an irrigation system.

66. Wetland. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 230.3(t)).

67. Wildlife Habitat. Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

EXHIBIT J

APPENDIX A

Staff Recommendations for Agricultural Order

ORDER NO. R3-2011-0006

CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

March 2011

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State of California

Linda S. Adams, Secretary
California Environmental Protection Agency

State Water Resources Control Board
http://www.waterboards.ca.gov/

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California Regional Water Quality Control Board
Central Coast Region
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Roger Briggs, Executive Officer
Michael Thomas, Assistant Executive Officer

This report was prepared under the direction of:

Angela Schroeter, Senior Engineering Geologist
Lisa Horowitz McCann, Environmental Program Manager

Assisted by the following Central Coast Water Board Staff:

Mary Adams
Monica Barricarte
Burton Chadwick
Cecile DeMartini
Katie DiSimone
Donette Dunaway
John Goni
Phil Hammer
Hector Hernandez
Mike Higgins
Corinne Huckaby
Alison Jones
Matt Keeling
Shanta Keeling
Howard Kolb
Peter Meertens
Gary Nichols
Jill North
Sorrel Marks
John Mijares
Harvey Packard
Lindsay Ringer
John Robertson
Dominic Roques
Chris Rose
Elaine Sahl
Kim Sanders
Steve Saiz
Sheila Soderberg
Dean Thomas
Thea Tryon
Karen Worcester

DRAFT FOR MARCH 17, 2011 BOARD CONSIDERATION

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

ORDER NO. R3-2011-0006

CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

The California Regional Water Quality Control Board, Central Coast Region finds that:

1. The Central Coast Region has approximately 435,000 acres of irrigated land and approximately 3000 agricultural operations, which may be generating wastewater that falls into the category of discharges of waste from irrigated lands.

2. The Central Coast Region has more than 17,000 miles of surface waters (linear streams/rivers) and approximately 4000 square miles of groundwater basins that are, or may be, affected by discharges of waste from irrigated lands.

3. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) are the principal state agencies with primary responsibility for the coordination and control of water quality pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The legislature, in the Porter-Cologne Act, directed the Water Board to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation, considering precipitation, topography, population, recreation, agriculture, industry, and economic development (Water Code § 13000).

4. On July 9, 2004, the Central Coast Regional Water Quality Control Board (Central Coast Water Board) adopted Resolution No. R3-2004-0117 establishing a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (2004 Agricultural Order). In the 2004 Agricultural Order, the Central Coast Water Board found that the discharge of waste from irrigated lands has impaired and polluted the waters of the State and of the United States within the Central Coast Region, has impaired the beneficial uses, and has caused nuisance. The 2004 Agricultural Order expired on July 9, 2009, and the Central Coast Water Board

renewed it for a term of one year until July 10, 2010 (Order No. R3-2009-0050). On July 8, 2010, the Central Coast Water Board renewed the 2004 Agricultural Order again for an additional eight months until March 31, 2011 (Order No. R3-2010-0040). This *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,* Order No. R3-2011-0006 (Order), renews and revises the 2004 Agricultural Order as set forth herein.

5. Since the issuance of the 2004 Agricultural Order, the Central Coast Water Board has compiled additional and substantial empirical data demonstrating that water quality conditions in agricultural areas of the region continue to be severely impaired or polluted by waste discharges from irrigated agricultural operations and activities that impair beneficial uses, including drinking water, and impact aquatic habitat on or near irrigated agricultural operations. The most serious water quality degradation is caused by fertilizer and pesticide use, which results in runoff of chemicals from agricultural fields into surface waters and percolation into groundwater. Runoff and percolation include both irrigation water and stormwater. Every two years, the Water Board is required by Section 303(d) of the federal Clean Water Act to assess water quality data for California's waters to determine if they contain pollutants at levels that exceed protective water quality criteria and standards. This Order prioritizes conditions to control pollutant loading in areas where water quality impairment is documented in the 2010 Clean Water Act section 303(d) List of Impaired Waterbodies (hereafter referred to as 2010 List of Impaired Waterbodies). As new Clean Water Act section 303(d) Lists of Impaired Waterbodies are adopted, the Central Coast Water Board will consider such lists for inclusion in tiering criteria and conditions for this and subsequent Orders.

6. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the largest primary source of nitrate pollution in drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices[1]. Researchers estimate that tens of millions of pounds of nitrate leach into groundwater in the Salinas Valley alone each year. Studies indicate that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in agricultural areas[2]. Hundreds of drinking water wells serving thousands of people throughout the region have nitrate levels exceeding the drinking water standard[3]. This presents a significant threat to human health as pollution gets substantially worse each year, and the actual numbers of polluted wells and people

[1] Carle, S.f., B.K. Esser, J.E. Moran, High-Resolution Simulation of Basin-Scale Nitrate Transport Considering Aquifer System Heterogeneity, Geosphere, June 2006, v.2, no. 4, pg. 195-209.
[2] Monterey County Flood Control and Water Conservation District, "Report of the Ad Hoc Salinas Valley Nitrate Advisory Committee." Zidar, Snow, and Mills. November 1990.
[3] California Department of Public Health Data obtained using GeoTracker GAMA (Groundwater Ambient Monitoring and Assessment) online database, http://geotracker.waterboards.ca.gov/gama/.

affected are unknown. Protecting public health and ensuring safe drinking water is among the highest priorities of this Order. This Order prioritizes conditions to control nitrate loading to groundwater and impacts to public water systems. In the case where further documentation indicates nitrate impacts to small water systems and/or private domestic wells, the Executive Officer will consider proximity to impacted small water systems and private domestic wells for inclusion in tiering criteria.

7. Agricultural use rates of pesticides in the Central Coast Region and associated toxicity are among the highest in the State[4]. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicate that toxicity resulting from agricultural discharges of pesticides has severely impacted aquatic life in Central Coast streams[5,6,7]. Some agricultural drains have shown toxicity nearly every time the drains are sampled. Twenty-two sites in the region, 13 of which are located in the lower Salinas/Tembladero watershed area, and the remainder in the lower Santa Maria area, have been toxic in 95% (215) of the 227 samples evaluated. This Order prioritizes conditions to address pesticides that are known sources of toxicity and sources of a number of impairments on the 2010 List of Impaired Waterbodies, specifically chlorpyrifos and diazinon. In the case where further documentation indicates that additional pesticides are a primary source of toxicity and impairments in the Central Coast region, the Executive Officer will consider such pesticides for inclusion in tiering criteria.

8. Existing and potential water quality impairment from agricultural waste discharges takes on added significance and urgency, given the impacts on public health, limited sources of drinking water supplies and proximity of the region's agricultural lands to critical habitat for species of concern.

9. This Order regulates discharges of waste[8] from irrigated lands by requiring individuals subject to this Order to comply with the terms and conditions set forth herein to ensure that such discharges do not cause or contribute to the exceedance of any Regional, State, or Federal numeric or narrative water quality standard

[4] Starner, K., J. White, F. Spurlock and K. Kelley. Pyrethroid Insecticides in California Surface Waters and Bed Sediments: Concentrations and Estimated Toxicities. California Department of Pesticide Regulation. 2006.
[5] Anderson, B.S., J.W. Hunt, B.M. Phillips, P.A. Nicely, V. De Vlaming, V. Connor, N. Richard, R.S. Tjeerdema. Integrated assessment of the impacts of agricultural drainwater in the Salinas River (California, USA). Environmental Pollution 124, 523 - 532. 2003.
[6] Anderson B.S., B.M. Phillips, J.W. Hunt, V. Connor, N. Richard, R.S. Tjeerdema. "Identifying primary stressors impacting macroinvertebrates in the Salinas River (California, USA): Relative effects of pesticides and suspended particles" Environmental Pollution 141(3):402-408. 2006a.
[7] Anderson, B.S., B.M. Phillips, J.W. Hunt, N. Richard, V. Connor, K.R. Worcester, M.S. Adams, R.S. Tjeerdema. Evidence of pesticide impacts in the Santa Maria River Watershed (California, USA). Environmental Toxicology and Chemistry, 25(3):1160 - 1170. 2006b.
[8] This Order regulates discharge of "waste" as defined in Water Code section 13050 and "pollutants" as defined in the Clean Water Act. For simplicity, the term "waste" or "wastes" is used throughout. The term "waste" is very broad and includes "pollutants" as defined in the Clean Water Act.

(hereafter referred to as exceedance of water quality standards) in waters of the State and of the United States.

10. 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 meet water quality standards and achieve compliance with this Order.

11. The Central Coast Water Board encourages Dischargers to coordinate the effective implementation of local or regional scale water quality protection and treatment strategies (such as managed aquifer recharge projects) to lower costs, maximize effectiveness, and achieve compliance with this Order. In cases where Dischargers are participating in effective local or regional treatment strategies, and individual on-farm discharges continue to cause exceedances of water quality standards in the short term, the Executive Officer will take into consideration such participation in the local or regional treatment strategy and progress made towards compliance with water quality standards in evaluating compliance with this Order. In cases where local or regional treatment strategies necessitate a longer time schedule to achieve compliance than required by this Order, Dischargers may submit an alternative time schedule for approval by the Executive Officer.

12. The Central Coast Water Board encourages Dischargers to coordinate the implementation of management practices with other Dischargers discharging to common tile drains, including efforts to develop regional salt and nutrient management plans. The Executive Officer may require additional monitoring and reporting for discharges to tile drains as necessary to evaluate compliance with this Order.

13. The Central Coast Water Board encourages Dischargers to participate in regional or local groundwater monitoring efforts conducted as part of existing or anticipated groundwater monitoring programs, including efforts related to regional and local salt and nutrient management plans, integrated regional water management (IRWM) plans, or the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program.

14. Dischargers have the option of complying with surface receiving water quality monitoring conditions identified in MRP Order No. R3-2011-0006, either individually or through a cooperative monitoring program. The Central Coast Water Board encourages Dischargers to participate in a cooperative monitoring program to comply with surface receiving water quality monitoring conditions. In the development of any cooperative monitoring program fee schedule, the Central Coast Water Board encourages Dischargers to scale the assessment of fees based on relative level of waste discharge and threat to water quality.

15. The Central Coast Water Board will evaluate various types of information to determine compliance with this Order such as, a) management practice implementation and effectiveness, b) treatment or control measures, c) individual discharge monitoring results, d) receiving water monitoring results, and e) related reporting.

16. Many owners and operators of irrigated lands within the Central Coast Region have taken actions to protect water quality. In compliance with the 2004 Agricultural Order, most owners and operators enrolled in the 2004 Agricultural Order, implemented the Cooperative Monitoring Program (CMP), participated in farm water quality education, developed farm water quality management plans and implemented management practices as required in the 2004 Agricultural Order. The 2004 Agricultural Order did not include conditions that allowed for determining individual compliance with water quality standards or the level of effectiveness of actions taken to protect water quality, such as individual discharge monitoring or evaluation of water quality improvements. This Order includes new or revised conditions to allow for such evaluations.

17. Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste that could affect the quality of the waters of the State, other than into a community sewer system, shall file with the appropriate Regional Board a report of waste discharge (ROWD) containing such information and data as may be required by the Central Coast Water Board, unless the Central Coast Water Board waives such requirement.

18. Water Code section 13263 requires the Central Coast Water Board to prescribe waste discharge requirements (WDRs), or waive WDRs, for the discharge. The WDRs must implement relevant water quality control plans and the Water Code.

19. Water Code section 13269(a) provides that the Central Coast Water Board may waive the requirement to obtain WDRs for a specific discharge or specific type of discharge, if the Central Coast Water Board determines that the waiver is consistent with any applicable water quality control plan and such waiver is in the public interest, provided that any such waiver of WDRs is conditional, includes monitoring conditions unless waived, does not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board.

20. As authorized by Water Code section 13269, this Order conditionally waives the requirement to obtain WDRs for Dischargers who comply with the terms of this Order. See Attachment A to this Order for additional findings related to legal and regulatory considerations, and rationale for this Order.

SCOPE OF ORDER NO. R3-2011-0006

Irrigated Lands and Agricultural Discharges Regulated Under this Order

21. This Order regulates (1) discharges of waste from irrigated lands, including, but not limited to, land planted to row, vineyard, field and tree crops where water is applied for producing commercial crops; (2) discharges of waste from commercial nurseries, nursery stock production, and greenhouse operations with soil floors that do not have point-source type discharges and are not currently operating under individual WDRs; and (3) discharges of waste from lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops.

22. Discharges from irrigated lands regulated by this Order include discharges of waste to surface water and groundwater, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills. These discharges can contain wastes that could affect the quality of waters of the State and impair beneficial uses.

Dischargers Regulated Under this Order

23. This Order regulates both landowners and operators of irrigated lands on or from which there are discharges of waste that could affect the quality of any surface water or groundwater (Dischargers). Dischargers are responsible for complying with the conditions of this Order. The Central Coast Water Board will hold both the landowner and the operator liable for noncompliance with this Order.

24. The Central Coast Water Board recognizes that due to different types of operations and/or locations, discharges of waste from irrigated lands may have the potential for different levels of impacts on waters of the state or of the United States. This Order establishes three tiers of regulation to take into account the variation, including different regulatory conditions for the three tiers.

25. Dischargers who have not enrolled to comply with a previous order must submit to the Central Coast Water Board a completed electronic Notice of Intent (NOI) to comply with the conditions of this Order to comply with the Water Code.

26. Dischargers who have submitted a completed electronic NOI to the Central Coast Water Board to comply with a previous order must update their NOI to reflect current operation and ranch information.

27. Landowners and operators of irrigated lands who obtain a pesticide use permit from a local County Agricultural Commissioner may have a discharge of waste that could affect surface water and groundwater, and therefore must submit to the Central Coast Water Board, a completed electronic NOI to comply with the conditions of this Order to comply with the Water Code.

28. The NOI serves as a report of waste discharge (ROWD) for the purposes of this Order.

Agricultural Discharges Not Covered Under this Order and Who Must Apply for Individual Waste Discharge Requirements

29. This Order does not waive WDRs for commercial nurseries, nursery stock production and greenhouse operations that have point-source type discharges, and fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors). These operations must eliminate all such discharges of wastes or submit a ROWD to apply for individual WDRs as set forth in Water Code section 13260.

PUBLIC PARTICIPATION PROCESS

30. The Central Coast Water Board notified interested persons that the Central Coast Water Board will consider the adoption of this Order, which conditionally waives individual WDRs and establishes conditions for the control of discharges of waste from irrigated lands to waters of the State, and provided several opportunities for public input.

31. In December 2008, the Central Coast Water Board invited members of the public to participate in development of this Order and provide recommendations to Central Coast Water Board staff. In particular, the Central Coast Water Board requested the assistance of an agricultural advisory panel in developing appropriate milestones, timetables, and verification monitoring programs to resolve water quality problems and achieve compliance with the Basin Plan. Additionally, in early 2009, the Central Coast Water Board notified all water purveyors, water districts and municipalities that staff was developing recommendations for this Order.

32. In December 2009, the Central Coast Water Board encouraged any interested person who wanted to present alternative recommendations to this Order to provide those recommendations in writing by April 1, 2010.

33. On February 1, 2010, the Central Coast Water Board publicly released a preliminary report and preliminary draft order for the regulation of discharges from irrigated lands and accepted comments on the preliminary draft order through June 4, 2010.

34. The Central Coast Water Board held two public workshops (May 12, 2010, and July 8, 2010) to discuss the preliminary draft order, public comments, and alternative recommendations.

35. The Central Coast Water Board released a Draft Agricultural Order and staff report on November 19, 2010 for public review and comment, and held an additional public workshop on February 3, 2011.

36. Between November 2009 and February 2011, Central Coast Water Board staff attended more than 40 meetings and conferences to describe the process for developing the Draft Agricultural Order, discuss options, and hear public input regarding the Draft Agricultural Order. These events included numerous stakeholders representing the agricultural industry and its technical assistance providers, environmental and environmental justice organizations, local and state government agencies and other members of the public.

37. Interested persons were notified that the Central Coast Water Board will consider adoption of an Order, which conditionally waives WDRs for discharges of waste from irrigated lands, as described in this Order, and were provided an opportunity for a public hearing and an opportunity to submit written comments.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

38. For purposes of adoption of this Order, the Central Coast Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code §§ 21100 et seq.).

39. In 2004, the Central Coast Water Board adopted the 2004 Agricultural Order and a Negative Declaration prepared in compliance with CEQA. CEQA Guidelines state that no subsequent environmental impact report (SEIR) shall be prepared when an EIR has been certified or negative declaration adopted for a project unless the lead agency determines based on substantial evidence in light of the whole record, one or more of the following:

> *(1) if substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects; or,*

(2) if substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental impacts or a substantial increase in the severity of previously identified significant effects; or

(3) if new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, becomes available.

(Cal. Code Regs., tit. 14, § 15162(a).)

This regulation applies if there is a modification of a previous project. In this case, the Central Coast Water Board is proposing to renew the 2004 Agricultural Order, which is the previous project, with clarifications and new conditions. To assist in determining whether an SEIR would be necessary, the Central Coast Water Board staff held a CEQA scoping meeting on August 16, 2010 to receive input from interested persons and public agencies on potentially significant environmental effects of the proposed project. Staff also accepted written comments regarding scoping up until August 27, 2010 in order to allow for comments from those who were unable to attend the meeting and/or for those who wished to submit additional comments. Members of the public and representatives of public agencies provided comments regarding their views on significant environmental effects associated with the adoption of a renewed Agricultural Order. As described in Findings 30 - 37 and prior to the scoping meeting in August, 2010, significant public participation activities had occurred.

In preparing the Draft SEIR, Central Coast Water Board staff reviewed the 2004 Negative Declaration, including the Initial Study (Environmental Checklist), considered the comments received during the public participation process with respect to renewal of the 2004 Agricultural Order, including evidence in the record, written and oral comments, proposed alternatives, and information provided at and following the August 16, 2010 scoping meeting, and comments received on the Draft SEIR. Review of this information did not result in identification of any new environmental effects that had not already been evaluated in the 2004 Negative Declaration. Staff identified two areas included on the Environmental Checklist where there was a potential for an increase in the severity of environmental effects previously identified. These areas are (1) the potential for more severe impacts on agricultural resources due to the potential for an increase in the use of vegetated buffer strips and economic impacts due to new requirements that could take some land out of direct agricultural use and (2) the potential for more severe impacts on

biological resources due to the potential for a reduction in water flows in surface waters.

The Central Coast Water Board issued a Notice of Availability on October 25, 2010 and provided the public with 45 days to submit written comments on the Draft SEIR. The Water Board received 12 written comment letters. Responses to the comments are in Section 7 of the Final SEIR. In response to comments, the Central Coast Water Board staff revised the Draft SEIR and prepared a draft Final SEIR for the Central Coast Water Board's certification. The 2004 Negative Declaration and the Final SEIR constitute the environmental analysis under CEQA for this Order.

40. With respect to Agricultural Resources, the Final SEIR concludes that adoption of the proposed alternative could result in some economic or social changes but that there was insufficient evidence to conclude that the economic changes would result in adverse physical changes to the environment. Commenters speculated that the economic impacts would be so large as to result in large scale end to agriculture and that land would be sold for other uses that would result in impacts on the environment. No significant information was provided to justify that concern. As described in Section 2.4 of this Final SEIR, the draft 2011 Agricultural Order would impose additional conditions on approximately 100 to 300 of the estimated 3000 owners or operators currently enrolled in the 2004 Agricultural Order. CEQA states that economic or social effects of a project shall not be treated as significant effects on the environment. (Pub. Res. Code § 21083.) The Final SEIR concludes that due to some new conditions, particularly the requirement that some dischargers may be required to implement vegetated buffer strips, could result in loss of land for agricultural production since the buffer strips would generally not produce crops and some land could be converted to other uses. This impact was found to be less than significant and that mitigation could reduce impacts further. The Central Coast Water Board may not generally specify the manner of compliance and therefore, dischargers may choose among many ways to comply with the requirement to control discharges of waste to waters of the state. Even if all dischargers who could be subject to the condition to use vegetated buffers or some other method to control discharges in the draft 2011 Agricultural Order (Tier 3 dischargers) chose to use vegetated buffers or converted to other uses, the total acreage is quite small compared to the total amount of acreage used for farming and was, therefore, found to be less than significant. In addition, since the land would be used as a vegetated buffer to comply with the Order, this would result in beneficial impacts on the environment, not adverse impacts.

With respect to Biological Resources, the Final SEIR concludes that wide scale water conservation could result in lower flows into surface water resulting in impacts on aquatic life. The Central Coast Water Board may not specify the manner of compliance so it has insufficient information to evaluate the extent to which dischargers would choose to use water conservation to comply and to evaluate potential physical

changes to the environment that could result. Reduction in toxic runoff may offset impacts due to the reduced flows that could occur. In addition, reduction in water use could result in increased groundwater levels that would also result in more clean water to surface water.

Based on this information, the Final SEIR concludes that the environmental effects associated with the draft 2011 Agricultural Order may be significant with respect to biological resources. However, given the uncertainty associated with evaluating the available information, it is possible that the effects may turn out to be less than significant. In Resolution R3-2011-0006, the Central Coast Water Board has made findings consistent with the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15091) and a statement of overriding considerations (Cal. Code Regs., tit. 14, § 15093) with respect to biological resources.

ADDITIONAL FINDINGS

41. Attachment A to this Order, incorporated herein, includes additional findings that further describe a) the Water Board's legal and regulatory authority, b) the rationale for this Order, c) a description of the environmental and agricultural resources in the Central Coast Region, and d) impacts to water quality from agricultural discharges. Attachment A also identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory condition that apply to the discharge of waste from irrigated lands. Attachment A also includes definitions of terms for purposes of this Order.

IT IS HEREBY ORDERED that:

1. Pursuant to Water Code sections 13260, 13263, 13267, and 13269, Dischargers must comply with the terms and conditions of this Order to meet the provisions contained in Water Code Division 7 and regulations and plans and policies adopted there under.

2. This Order shall not create a vested right to discharge, and all discharges of waste are a privilege, not a right, as provided for in Water Code section 13263(g).

3. Dischargers must not discharge any waste not specifically regulated by this Order except in compliance with the Water Code.

4. Pursuant to Water Code section 13269, the Central Coast Water Board waives the requirement that Dischargers obtain WDRs pursuant to Water Code section 13263(a) for discharges of waste from irrigated lands, if the Discharger enrolls in

and complies with this Order, including Attachments and Monitoring and Reporting Program (MRP) Order No. R3-2011-0006.

5. Pursuant to Water Code section 13269, this action waiving the issuance of WDRs for certain specific types of discharges: 1) is conditional; 2) may be terminated by the Central Coast Water Board at any time; 3) may be superseded if the State Water Board or Central Coast Water Board adopts specific WDRs or general WDRs for this type of discharge or any individual discharger; 4) does not permit any illegal activity; 5) does not preclude the need for permits which may be required by other local or governmental agencies; and 6) does not preclude the Central Coast Water Board from requiring WDRs for any individual discharger or from administering enforcement remedies (including civil liability) pursuant to the Water Code.

6. Dischargers or groups of Dischargers seeking regulatory requirements tailored to their specific operation or commodity may submit an ROWD to obtain individual or general orders for a specific discharge or type of discharge (e.g., commodity-specific general order). This Order remains applicable until such individual or general orders are adopted by the Central Coast Water Board.

7. The Executive Officer may propose, and the Water Board may adopt, individual WDRs for any Discharger at any time.

8. The Central Coast Water Board or the Executive Officer may, at any time, terminate applicability of this Order with respect to an individual Discharger upon written notice to the Discharger.

9. Dischargers are defined in this Order as both the landowner and operator of irrigated cropland, and both must comply with this Order.

10. Dischargers may comply with this Order by participating in third-party groups (e.g., watershed group or water quality coalition) approved by the Central Coast Water Board. In this case, the third-party group will assist individual growers in achieving compliance with this Order, including required monitoring and reporting as described in MRP Order No. R3-2011-0006-01, MRP Order No. R3-2011-0006-02, and MRP Order No. R3-2011-0006-03. Consistent with the Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy, 2004), the ineffectiveness of a third-party group through which a Discharger participates in nonpoint source control efforts cannot be used as an excuse for lack of individual discharger compliance. Individual Dischargers continue to bear responsibility for complying with this Order.

11. Dischargers who are subject to this Order shall implement management practices, as necessary, to improve and protect water quality and to achieve compliance with applicable water quality standards.

Part A. Tiers

12. Dischargers are classified into a tier based upon criteria that define the risk to water quality and the level of waste discharge. The Executive Officer may update the criteria, as necessary.

13. Dischargers must determine the tier that applies to their operation or lands when they enroll or update their Notice of Intent (NOI), via electronic submittal. See Part E. Submittal of Technical Reports.

14. **Tier 1** – Applies to all Dischargers who meet all of the criteria described in **(1a), (1b), and (1c)**, or who are certified in a sustainable agriculture program identified in **(1d)** that requires and verifies effective implementation of management practices that protect water quality:

    1a. Discharger does not use chlorpyrifos or diazinon, which are documented to cause toxicity in surface waters in the Central Coast Region;

    1b. Operation is located more than 1000 feet from a surface waterbody listed for toxicity, pesticides, nutrients, turbidity or sediment on the 2010 List of Impaired Waterbodies[9] (Table 1);

    1c. If the Discharger grows crop types with high potential to discharge nitrogen to groundwater (as defined in Attachment A), then the operation total irrigated acreage is *less than* 1000 acres, and is *not* within 1000 feet of a public water system well that exceeds the maximum contaminant level (MCL) for nitrate, nitrite, or nitrate + nitrite[10];

[9] The 2010 List of Impaired Waterbodies is available on the Water Board's Impaired Water Bodies website at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

[10] California Department of Health Services (CDPH) has determined that public water system well location records are confidential and exempt from disclosure to the public. Until such time that public water system well location records become available to the public, the Central Coast Water Board will identify Dischargers who are within 1000 feet of a public water system well that exceeds the maximum contaminant level (MCL) for nitrate, nitrite, or nitrate + nitrite. Dischargers should evaluate their tier for the purposes of this Order based on all information available. In the case where a Discharger should be placed into a different tier based on proximity to a public water system well, the Central Coast Water Board will provide appropriate notice to the Discharger. Approximate locations for public water system wells are available on the Water Board's GeoTracker GAMA website at http://geotracker.waterboards.ca.gov/gama/.

1d. Sustainability in Practice (SIP, certified by the Central Coast Vineyard Team) or other certified programs approved by the Executive Officer.

15. **Tier 2** – Applies to all Dischargers who do not meet the Tier 1 or Tier 3 criteria. In general, Tier 2 Dischargers meet at least one of the characteristics described in **(2a), (2b), or (2c)**:

    2a. Discharger applies chlorpyrifos or diazinon, which are documented to cause toxicity in surface waters in the Central Coast Region;

    2b. Operation is located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, turbidity or sediment on the 2010 List of Impaired Waterbodies (see Table 1);

    2c. Discharger grows crop types with high potential to discharge nitrogen to groundwater (as defined in Attachment A), and the operation total irrigated acreage is *less than* 1000 acres, and the operation is *within* 1000 feet of a public water system well that exceeds the maximum contaminant level (MCL) for nitrate, nitrite, or nitrate + nitrite[9];

16. **Tier 3** – Applies to all Dischargers who meet one the following sets of criteria ***(3a) or (3b)***:

    3a. Discharger grows crop types with high potential to discharge nitrogen to groundwater (as defined in Attachment A), and operation total irrigated acreage is *greater than or equal* to 1000 acres;

    3b. Discharger applies chlorpyrifos and diazinon, and operation discharges irrigation or stormwater runoff to a waterbody listed for toxicity or pesticides on the 2010 List of Impaired Waterbodies (Table 1);

17. Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. The Discharger must provide information to demonstrate a lower level of waste discharge and a lower threat to water quality, including site-specific operational and water quality information to characterize the waste discharge and resulting effect on water quality. Dischargers remain in the tier determined by the criteria above and must meet all conditions for that tier until the Executive Officer approves the request to transfer to a lower tier. At a minimum, information provided by Dischargers requesting transfer to a lower tier must include the following:
    a. Ranch maps(s) identifying discharge points and any water quality sampling locations;

b. Schematic showing the flow of irrigation and stormwater runoff, including where it leaves the operation farm/ranch and where the discharge enters receiving water;
c. Description of the volume of discharges and when the discharge is present;
d. Description of type of chemicals applied (e.g. pesticide and fertilizer use);
e. Description of estimated pollutant loading to groundwater;
f. Description and results of any individual discharge water quality sampling information available (e.g. irrigation runoff and stormwater sampling, lysimeter sampling);

18. The Executive Officer may elevate Tier 1 or Tier 2 Dischargers to a higher tier if the Discharger poses a higher threat to water quality based on information submitted as part of the NOI, MRP, or information observed upon inspection of an operation or ranch/farm, or any other appropriate evidence that indicates the operation or ranch/farm meets the criteria for a higher tier.

19. The Executive Officer may require Dischargers to enroll irrigated land with similar characteristics (e.g., same landowner or operator), and proximal, adjacent, or contiguous location, as a single operation or farm/ranch.

20. Unless otherwise specified, the conditions of this Order apply to all Dischargers, including Tier 1, Tier 2, and Tier 3.

Part B. Discharge Prohibitions that Apply to All Dischargers

21. The discharge of any waste not specifically regulated by the Order described herein is prohibited under this Order. To discharge waste not specifically regulated by this Order, the Discharger must comply with Water Code section 13260(a) by submitting a report of waste discharge and the Central Coast Water Board either issues WDRs pursuant to Water Code section 13263 or an individual waiver pursuant to Water Code section 13269, or the conditions specified in Water Code section 13264(a) must be met by the Discharger.

22. The discharge of any waste at a location or in a manner different from that described in the NOI is prohibited.

23. The discharge of chemicals such as fertilizers, fumigants or pesticides down a groundwater well casing is prohibited.

24. The discharge of chemicals used to control wildlife (such as bait traps or poison) into surface waters, or at any place where the chemicals may contact or may eventually be discharged to surface waters, is prohibited.

25. The discharge of agricultural rubbish, refuse, irrigation tubing or tape, or other solid wastes into surface waters, or at any place where they may contact or may eventually be discharged to surface waters, is prohibited.

26. The discharge of pollutants from point sources to waters of the United States, including wetlands, where the discharger is required to obtain an NPDES permit under Clean Water Act sections 301 or 402 (NPDES), or a dredge and fill permit under Clean Water Act section 404 (dredge and fill), is prohibited except as authorized by an NPDES permit or section 404 permit. An area is considered a wetland, subject to Clean Water Act section 404, if it meets the United States Army Corps of Engineers' definition as described in the Code of Federal Regulations and associated wetland delineation procedures, or relevant Water Board definitions.

Part C. General Conditions and Provisions for All Dischargers - Tier 1, Tier 2, and Tier 3

Water Quality Standards-

27. Dischargers must comply with applicable water quality standards, as defined in Attachment A, protect the beneficial uses of waters of the State and prevent nuisance as defined in Water Code section 13050.

28. Dischargers must comply with applicable provisions of the Central Coast Region Water Quality Control Plan (Basin Plan) and all other applicable water quality control plans as identified in Attachment A.

29. Dischargers must comply with applicable Total Maximum Daily Loads (TMDLs), including any plan of implementation for the TMDL, commencing with the effective date or other date for compliance stated in the TMDL. A list of TMDLs adopted by the Central Coast Water Board is available on the Central Coast Water Board website at: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/index.shtml.

Waste Discharge Control-

30. **By October 1, 2012**, Dischargers that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system must have functional and properly maintained back flow prevention devices installed at the well or pump to prevent pollution of groundwater or surface water, consistent with any applicable DPR requirements or local ordinances. Back flow prevention devices used to protect

water quality must be those approved by USEPA, DPR, CDPH, or the local public health or water agency.

31. **By October 1, 2015,** Dischargers must properly destroy all abandoned groundwater wells, exploration holes or test holes, as defined by Department of Water Resources (DWR) Bulletin 74-81 and revised in 1988, in such a manner that they will not produce water or act as a conduit for mixing or otherwise transfer groundwater or waste constituents between permeable zones or aquifers. Proper well abandonment must be consistent with any applicable DWR requirements or local ordinances.

32. Dischargers who utilize containment structures (such as retention ponds or reservoirs) to achieve treatment or control of the discharge of wastes must construct and maintain such containment structures to avoid percolation of waste to groundwater that causes or contributes to exceedances of water quality standards, and to avoid surface water overflows that have the potential to impair water quality.

33. Dischargers must implement proper handling, storage, disposal and management of pesticides, fertilizer, and other chemicals to prevent or control the discharge of waste to waters of the State that cause or contributes to exceedances of water quality standards.

34. Dischargers must comply with any Department of Pesticide Regulation (DPR) adopted or approved surface water protection requirements.

35. Dischargers must implement source control or treatment management practices to prevent erosion, reduce stormwater runoff quantity and velocity, and hold fine particles in place. Practices must infiltrate, control, or treat stormwater runoff for the first half inch of rain during each storm, and further reduce the runoff for the next one inch of rain during each storm.

36. Dischargers must minimize the presence of bare soil vulnerable to erosion and soil runoff to surface waters and implement erosion control, sediment, and stormwater management practices in non-cropped areas, such as unpaved roads and other heavy use areas.

37. Dischargers must comply with any applicable stormwater permit.

38. Dischargers must a) maintain existing, naturally occurring, riparian vegetative cover (such as trees, shrubs, and grasses) in aquatic habitat areas as necessary to minimize the discharge of waste; and b) maintain riparian areas for effective streambank stabilization and erosion control, stream shading and temperature

control, sediment and chemical filtration, aquatic life support, and wildlife support to minimize the discharge of waste;

39. In the case where disturbance of aquatic habitat is necessary for the purposes of water quality improvement or restoration activities, Dischargers must implement appropriate and practicable measures to avoid, minimize, and mitigate erosion and discharges of waste, including impacts to aquatic habitat.

40. Where required by California Fish and Game Code, Dischargers must submit proof of an approved Streambed Alteration Agreement from the California Department of Fish and Game (CDFG) for any work conducted within the bed, bank or channel of a lake or stream, including riparian areas, that has the potential to result in erosion and discharges of waste to waters of the State.

41. Where required by California Forest Practice Rules, Dischargers must submit proof of California Department of Forestry and Fire Protection authorization, and enrollment in the Central Coast Water Board's General Conditional Waiver of WDRs – Timber Harvest Activities in the Central Coast Region, for any commercial harvesting of timber that has the potential to result in erosion and discharges of waste to waters of the State.

42. Where required by Clean Water Act Section 404, Dischargers must submit proof of a dredge and fill permit from the United States Army Corps of Engineers (USACOE) for any work that has the potential to discharge wastes considered "fill," such as sediment, to wetlands.

43. **By October 1, 2012**, Dischargers must update an existing or develop a new farm water quality management plan (Farm Plan), and implement it to achieve compliance with this Order. Farm Plans must be kept current and made available to Central Coast Water Board staff upon request. Farm Plans may be kept on the farm. At a minimum, Farm plans must include:

    a. Copy of this Order and a copy of the Notice of Intent (NOI) submitted to the Central Coast Water Board for reference by operating personnel and inspection by Central Coast Water Board staff;
    b. Date the Farm Plan was last updated;
    c. Operation farm/ranch maps(s) identifying irrigation and stormwater runoff discharge locations where it leaves the operation farm/ranch and where the discharge enters receiving water;
    d. Description of the volume of discharges and when the discharge is present;
    e. Description of type of chemicals applied (e.g. pesticide and fertilizer use);

f. Description and time schedule for any farm water quality management practices, treatment and control measures implemented to comply with this Order. This includes, but is not limited to, management practices related to irrigation efficiency and management, pesticide management, nutrient management, salinity management, sediment and erosion control (including stormwater management), and aquatic habitat protection to achieve compliance with this Order. In addition, Farm Plans must describe tile drain discharges and the management measures Dischargers have implemented or will implement to minimize impacts to water quality;
g. Description and results of methods used to verify practice effectiveness and compliance with this Order (e.g. water quality sampling, discharge characterization, reductions in pollutant loading);

44. Dischargers must obtain appropriate farm water quality education and technical assistance necessary to achieve compliance with this Order. Education should focus on meeting water quality standards by identifying on-farm water quality problems, implementing pollution prevention strategies and implementing practices designed to protect water quality and resolve water quality problems to achieve compliance with this Order.

Other Provisions and Conditions-

45. Pursuant to Water Code section 13267(c), the Central Coast Water Board or its authorized representatives may (a) enter upon the Discharger's premises where a regulated operation or activity is located or conducted; (b) inspect or photograph any operation or activity pertinent to this Order, (c) have access to and copy any records pertinent to this Order; and (d) sample or monitor to determine compliance with this Order. The inspection may be made with the consent of the owner or possessor of the facilities, or if consent is withheld, with a duly issued warrant. Water Board inspections may also be made in cooperation with State of California Police or Department of Fish and Game Wardens.

46. Pursuant to Water Code section 13267, the Executive Officer may require Dischargers to locate (inventory) and conduct sampling of private domestic wells in or near agricultural areas with high nitrate in groundwater and submit technical reports evaluating the sampling results. In addition, in compliance with Water Code section 13304, the Central Coast Water Board may require Dischargers to provide alternative water supplies or replacement water service, including wellhead treatment, to affected public water suppliers or private domestic well owners.

47. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code

Sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. Sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Dischargers must obtain authorization for an incidental take prior to taking action. Dischargers must be responsible for meeting all requirements of the applicable Endangered Species Act for the discharge authorized by this Order.

48. Dischargers must pay a fee to the State Water Resources Control Board in compliance with the fee schedule contained in Title 23 California Code of Regulations**.**

49. Dischargers must pay any relevant monitoring fees (e.g., Cooperative Monitoring Program) necessary to comply with monitoring and reporting conditions of this Order or comply with monitoring and reporting requirements individually.

Part D. Monitoring Conditions for All Dischargers- Tier 1, Tier 2, and Tier 3

50. Dischargers must comply with MRP Order No. R3-2011-0006, as ordered by the Executive Officer. Monitoring and reporting conditions are different for each tier, based on level of waste discharge and affect on water quality. Attached to this Order are three specific MRPs, one for each tier:

    a. Tier 1 Dischargers must comply with monitoring and reporting conditions specified in MRP Order No. R3-2011-0006-01;
    b. Tier 2 Dischargers must comply with monitoring and reporting conditions specified in MRP Order No. R3-2011-0006-02;
    c. Tier 3 Dischargers must comply with monitoring and reporting conditions specified in MRP Order No. R3-2011-0006-03;

51. Tier 1, Tier 2, and Tier 3 Dischargers must conduct groundwater sampling and reporting in compliance with MRP Order No. R3-2011-0006-01, MRP Order No. R3-2011-0006-02, and MRP Order No. 2011-0006-03 so that the Central Coast Water Board can 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.

52. Tier 1, Tier 2, and Tier 3 Dischargers must conduct surface receiving water quality monitoring and reporting in compliance with MRP Order No. R3-2011-0006, MRP Order No. R3-2011-0006-02, and MRP Order No. 2011-0006-03, either individually or through a cooperative monitoring program.

53. For Dischargers who choose to participate in a cooperative monitoring program, failure to pay cooperative monitoring program fees voids a selection or notification

of the option to participate in a cooperative monitoring and hence requires individual monitoring report submittal per MRP Order No. R3-2011-0006, MRP Order No. R3-2011-0006-02, and MRP Order No. 2011-0006-03.

Part E. Submittal of Technical Reports for All Dischargers- Tier 1, Tier 2, Tier 3

Notice of Intent (NOI) to Enroll under the Order for All Dischargers in Tier 1, Tier 2 and Tier 3

54. Submittal of the electronic NOI is required pursuant to Water Code section 13260. Submittal of all other technical reports pursuant to this Order is required pursuant to Water Code section 13267. Failure to submit technical reports or the attachments in accordance with schedules established by this Order or MRP, or failure to submit a complete technical report (i.e., of sufficient technical quality to be acceptable to the Executive Officer), may subject the Discharger to enforcement action pursuant to Water Code sections 13261, 13268, or 13350. Dischargers must submit technical reports in the format specified by the Executive Officer.

55. Dischargers seeking authorization to discharge under this Order must submit a completed electronic NOI form to the Central Coast Water Board. Dischargers already enrolled in the 2004 Agricultural Order and who have submitted their NOI electronically are not required to submit a new NOI. Upon submittal of an accurate and complete electronic NOI, the Discharger is enrolled under the Order, unless otherwise informed by the Executive Officer.

    a. In the case where an operator may be operating for a period of less than 12 months, the landowner must submit the electronic NOI.

    b. **Within 30 days** of the adoption of this Order, any Discharger who did not enroll in the 2004 Agricultural Order must submit an electronic NOI, unless otherwise directed by the Executive Officer.

    c. **Prior to any discharge or commencement of activities that may cause a discharge,** including land preparation prior to crop production, any Discharger proposing to control or own a new operation that has the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater must submit an electronic NOI.

d. Dischargers must submit any updates to the electronic NOI by **October 1, 2012 and annually thereafter by October 1,** to reflect changes to operation or ranch/farm information.

e. **Within 30 days**, in the event of a change in control or ownership of an operation or land presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner and operator of the existence of this Order by letter, and forward a copy of the letter to the Executive Officer.

f. **Within 30 days** of acquiring control or ownership of an operation, any Discharger acquiring control or ownership of an existing operation must submit an electronic NOI.

56. Dischargers must submit all the information required in the electronic NOI form including, but not limited to, the following information:
    a. Identification of each property covered by enrollment,
    b. Tier
    c. Landowner(s),
    d. Operator(s),
    e. Contact information,
    f. Option selected to comply with surface receiving water quality monitoring conditions (cooperative monitoring or individual),
    g. Location of operation, including specific farm(s)/ranch(es),
    h. Farm/ranch map with discharge locations and groundwater wells identified,
    i. Total and irrigated acreage,
    j. Crop type,
    k. Irrigation type,
    l. Discharge type,
    m. Chemical use,
    n. Presence and location of any perennial, intermittent, or ephemeral streams or riparian or wetland area habitat.

57. Dischargers must submit a statement of understanding of the conditions of the Order and MRP signed by the Discharger (landowner or operator) with the electronic NOI form. If the operator signs and submits the electronic NOI, the operator must provide a copy of the completed NOI form to the landowner(s).

58. Dischargers must identify in the electronic NOI if they are a Tier 1, Tier 2, or Tier 3 Discharger and provide complete and accurate information in the NOI that allows the Central Coast Water Board to confirm the appropriate tier. For Dischargers who do not provide adequate information for the Water Board to confirm or determine the appropriate tier, the Executive Officer will place them in Tier 3.

59. Coverage under this Order is not transferable to any person except after submittal of an updated NOI and approval by the Executive Officer.

60. For Dischargers who do not enroll in the Order in a timely manner as specified in this Order, the Executive Officer may require submittal of an ROWD, and the Discharger may be subject to WDRs.

Notice of Termination (NOT) for All Dischargers

61. **Immediately**, if a Discharger wishes to terminate coverage under the Order, the Discharger must submit a completed Notice of Termination (NOT). Termination from coverage is the date specified in the NOT, unless specified otherwise. All discharges, as defined in Attachment A, must cease before the date of termination, and any discharges on or after the date of termination shall be considered in violation of the Order, unless covered by other waivers of WDRs, general WDRs, or individual WDRs cover the discharge.

Monitoring and General Technical Reports for All Dischargers

62. Dischargers must submit monitoring reports in compliance with MRP Order No. R3-2011-0006, electronically in a format specified by the Executive Officer.

63. Any laboratory data submitted to the Central Coast Water Board by Dischargers must be submitted by, or under the direction of, a State registered professional engineer, registered geologist, State certified laboratory or other similarly qualified professional. Surface water quality data must be submitted electronically, in a format that is compatible with the Central Coast Ambient Monitoring Program (CCAMP), the State's Surface Water Assessment Program (SWAMP) or as directed by the Executive Officer. Groundwater quality data must be submitted in a format compatible with the electronic deliverable format (EDF) used by the State Water Board's Geotracker data management system, or as directed by the Executive Officer.

64. Dischargers must submit technical reports that the Executive Officer may require to determine compliance with this Order as authorized by Water Code section 13267, electronically in a format specified by the Executive Officer.

65. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure, the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. Also, the Discharger must clearly indicate on the cover of the Report that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be

exempt in redacted form, submit separately-bound unredacted pages (to be maintained separately by staff). . The Central Coast Water Board staff shall determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff shall notify the Discharger prior to making such report or portions of such report available for public inspection.

66. Dischargers or a representative authorized by the Discharger must sign technical reports submitted to comply with the Order. Any person signing a report submitted as required by this Order must make the following certification:

"In compliance with Water Code section *13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*

Part F. Additional Conditions that Apply to Tier 2 and Tier 3 Dischargers

Annual Compliance Reporting for Tier 2 and Tier 3 Dischargers

67. By **October 1, 2012, and updated by October 1 annually thereafter**, Tier 2 and Tier 3 Dischargers must submit an Annual Compliance Form electronically, in a format specified by the Executive Officer that includes all the information requested, per MRP Order No. R3-2011-0006-02 and MRP Order No. R3-2011-0006-03, respectively. The purpose of the electronic Annual Compliance Form is to provide up-to-date information to the Central Coast Water Board to assist in the evaluation of affect on water quality from agricultural waste discharges and evaluate progress towards compliance with this Order, including implementation of management practices, treatment or control measures, or changes in farming practices.

68. **By October 1, 2012**, Tier 2 and Tier 3 Dischargers must determine nitrate loading risk factor(s) in accordance with MRP Order No. R3-2011-0006-02 and MRP Order No. R3-2011-0006-03 and report the nitrate loading risk factors and overall Nitrate Loading Risk calculated for each ranch/farm or nitrate loading risk unit in the Annual Compliance Form, electronically (or in a format specified by the Executive Officer).

Photo Monitoring for Tier 2 and Tier 3 Dischargers with operations *adjacent to or containing* a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment

69. By **October 1, 2012,** and every four years thereafter, Tier 2 and Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment (identified in Table 1) must conduct photo monitoring per MRP Order No. R3-2011-0006-02 and MRP Order No. R3-2011-0006-03, respectively. Photo monitoring must document the condition of perennial, intermittent, or ephemeral streams and riparian and wetland area habitat, and demonstrate compliance with Basin Plan erosion and sedimentation requirements (see Part G. 77 of this Order), including the presence of bare soil vulnerable to erosion and relevant management practices and/or treatment and control measures implemented to address impairments. Photo documentation must be submitted electronically, in a format specified by the Executive Officer.

Total Nitrogen Reporting for Tier 2 and Tier 3 Dischargers with operations with High Nitrate Loading Risk

70. **By October 1, 2014 and by October 1 annually thereafter**, Tier 2 and Tier 3 Dischargers with High Nitrate Loading Risk must record and report total nitrogen in the Annual Compliance Form, electronically in a format specified by the Executive Officer, per MRP Order No. R3-2011-0006-02 and MRP Order No. R3-2011-0006-03, respectively.

71. As an alternative to reporting total nitrogen in the electronic Annual Compliance Form, Tier 2 and Tier 3 Dischargers with High Nitrate Loading Risk may propose an individual discharge groundwater monitoring and reporting program (GMRP) plan for approval by the Executive Officer. The GMRP plan must evaluate waste discharge to groundwater from each ranch/farm or nitrate loading risk unit with a High Nitrate Loading Risk.

Part G. Additional Conditions that Apply to Tier 3 Dischargers

72. **By October 1, 2011,** Tier 3 Dischargers must conduct individual surface water discharge monitoring per MRP Order No. R3-2011-0006-03.

73. **By October 1, 2013** and annually thereafter, Tier 3 Dischargers must submit individual surface water discharge monitoring data and reports per MRP Order No. R3-2011-0006-03, electronically, in a format specified by the Executive Officer..

Irrigation and Nutrient Management Plan for Tier 3 Dischargers with High Nitrate Loading Risk

74. **By October 1, 2013,** Tier 3 Dischargers with a High Nitrate Loading Risk must determine the typical crop nitrogen uptake for each crop type produced and report the basis for the determination (e.g., developed by commodity or industry group, published agronomic literature, research trials, site specific analysis of dry biomass of crop for the nitrogen concentration) per MRP Order No. R3-2011-0006-03.

75. **By October 1, 2013**, Tier 3 Dischargers with High Nitrate Loading Risk must develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, per MRP Order No. R3-2011-0006-03.

76. As an alternative to the development and implementation of an INMP, Tier 3 Dischargers with High Nitrate Loading Risk may propose an individual discharge groundwater monitoring and reporting program (GMRP) plan for approval by the Executive Officer. The GMRP plan must evaluate waste discharge to groundwater from each ranch/farm or nitrate loading risk unit and assess if the waste discharge is of sufficient quality that it will not cause or contribute to exceedances of any nitrate water quality standards in groundwater.

77. **By October 1, 2014 and annually thereafter,** Tier 3 Dischargers with High Nitrate Loading Risk must report specific INMP elements in the Annual Compliance Form per MRP Order No. R3-2011-0006-03, electronically in a format specified by the Executive Officer.

78. **By October 1, 2014,** Tier 3 Dischargers with High Nitrate Loading Risk must meet the following Nitrogen Balance ratio targets or implement an alternative to demonstrate an equivalent nitrogen load reduction. The Nitrogen Balance ratio refers to the total number of nitrogen units applied to the crop (considering all sources of nitrogen) relative to the typical nitrogen uptake value of the crop (crop need to grow and produce, amount removed at harvest plus the amount remaining in the system as biomass).

    a. Dischargers producing crops in annual rotation (such as a cool season vegetable in a triple cropping system) must achieve a Nitrogen Balance ratio target equal to one (1). A target of one (1) allows a Discharger to apply 100% of the amount of nitrogen required by the crop to grow and produce yield for every crop in the rotation. (Nitrogen applied includes any product, form or concentration, including but not limited to, organic and inorganic fertilizers,

slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil and nitrate in irrigation water.)

b. Dischargers producing annual crops occupying the ground for the entire year (e.g., strawberries or raspberries) must achieve a Nitrogen Balance ratio target equal to 1.2. A target of 1.2 allows a Discharger to apply 120% of the amount of nitrogen required by the crop to grow and produce a yield.

c. Beyond three years, Dischargers must demonstrate improved irrigation and nutrient management efficiency, improved Nitrogen Balance ratios, and reduced nitrate loading to groundwater. After three years, the Nitrogen Balance ratio must compare the total amount of nitrogen applied to the crop against the total nitrogen removed at harvest, rather than the typical nitrogen crop uptake, to accurately calculate the nitrogen remaining and available to the crop or that could load to groundwater.

79. **By October 1, 2015,** Tier 3 Dischargers with High Nitrate Loading Risk must verify the overall effectiveness of the INMP in protecting groundwater quality and achieving water quality standards for nitrate per MRP Order No. R3-2011-0006-03. Dischargers must identify the methods used to verify effectiveness and include the results as a report with the Annual Compliance Form, submitted electronically in a format specified by the Executive Officer.

<u>Water Quality Buffer Plan for Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment</u>

80. **By October 1, 2015,** Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment (see Table 1) must develop a Water Quality Buffer Plan per MRP Order No. R3-2011-0006-03 that protects the listed waterbody and its associated perennial and intermittent tributaries, including adjacent wetlands as defined by the Clean Water Act. Dischargers must submit the Water Quality Buffer Plan as a report with the Annual Compliance Form, submitted electronically in a format specified by the Executive Officer. The purpose of the Water Quality Buffer Plan is to control discharges of waste that cause or contribute to exceedances of water quality standards in waters of the State or United States in compliance with this Order and the following Basin Plan requirement:

a. Basin Plan (Chapter 5, p. V-13, Section V.G.4 – Erosion and Sedimentation, *"A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible,*

between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible. .."

b. As an alternative to the development and implementation of a Water Quality Buffer Plan, Tier 3 Dischargers may submit evidence to the Executive Officer to demonstrate that any discharge of waste is sufficiently treated or controlled such that is of sufficient quality where it will not cause or contribute to exceedances of water quality standards in waters of the State or of the United States.

81. Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment must implement the Water Quality Buffer Plan immediately upon submittal, unless the plan requests a time extension that is approved by the Executive Officer. If the Executive Officer determines the Water Quality Buffer Plan is not in compliance with this Order, the Executive Officer will notify the Discharger and the Discharger must make necessary modifications accordingly.

Part H. TIME SCHEDULE

82. Time schedules for compliance with conditions are identified in Conditions 84 – 87, and described in Table 2 (all Dischargers) and Table 3 (Tier 2 and Tier 3 Dischargers). Milestones are identified in Table 4. Dischargers must comply with Order Conditions by dates specified in Tables 2 and 3 in accordance with the MRP. The Water Board will consider the following information in determining compliance with this Order:
    a) compliance with the time schedules;
    b) effectiveness of management practice implementation;
    c) effectiveness of treatment or control measures (including local and regional treatment strategies);
    d) results of individual discharge monitoring (Tier 3);
    e) results of surface receiving water monitoring downstream of the point where the individual discharge enters the receiving water body;
    f) other information obtained by Water Board staff during inspections at operations or submitted in response to Executive Officer orders;

83. The Executive Officer may require additional monitoring and reporting as authorized by Water Code section 13267 in cases where Dischargers fail to demonstrate adequate progress towards compliance as indicated by milestones and compliance with other Conditions of the Order.

84. **By October 1, 2013**, Tier 3 Dischargers must effectively control individual waste discharges of pesticides and toxic substances to waters of the State and of the United States.

85. **By October 1, 2014**, Tier 3 Dischargers must effectively control individual waste discharges of sediment and turbidity to surface waters of the State or of the United States.

86. **By October 1, 2015**, Tier 3 Dischargers must effectively control individual waste discharges of nutrients to surface waters of the State or of the United States.

87. **By October 1, 2015,** Tier 3 Dischargers must effectively control individual waste discharges of nitrate to groundwater.

88. This Order becomes effective on 17 March 2011 and expires on 16 March 2016 unless rescinded or renewed by the Central Coast Water Board.

I, Roger W. Briggs, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order and Attachments adopted by the California Regional Water Quality Control Board, Central Coast Region, on 17 March 2011.

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Roger W. Briggs
Executive Officer

Table 1. 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies Impaired for Toxicity, Pesticides, Nutrients, Temperature, Turbidity, or Sediment

Waterbody Name	Impairment(s)[1]
Alisal Creek (Monterey Co.) [3]	Toxicity, Nutrients
Aptos Creek[2]	Sediment
Arana Gulch[3]	Pesticides
Arroyo Paredon[3]	Toxicity, Pesticides, Nutrients
Beach Road Ditch[2]	Nutrients, Turbidity
Bean Creek[2]	Sediment
Bear Creek (Santa Cruz Co.)[2]	Sediment
Bell Creek (Santa Barbara Co.) [3]	Toxicity, Nutrients
Blanco Drain[2,3]	Pesticides, Nutrients, Turbidity
Blosser Channel	Toxicity, Nutrients
Boulder Creek[2]	Sediment
Bradley Canyon Creek[2,3]	Toxicity, Nutrients, Turbidity
Bradley Channel[3]	Toxicity, Pesticides, Nutrients
Branciforte Creek[2,3]	Pesticides, Sediment
Carbonera Creek[2]	Nutrients, Sediment
Carnadero Creek	Nutrients, Turbidity
Carneros Creek (Monterey Co.) [2]	Nutrients, Turbidity
Carpinteria Creek[3]	Pesticides
Carpinteria Marsh (El Estero Marsh)	Nutrients
Casmalia Canyon Creek[2]	Sediment
Chorro Creek[2]	Nutrients, Sediment
Chualar Creek[2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Corralitos Creek[2]	Turbidity
Elkhorn Slough[2,3]	Pesticides, Sediment
Esperanza Creek	Nutrients
Espinosa Lake[3]	Pesticides
Espinosa Slough[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Fall Creek[2]	Sediment
Franklin Creek (Santa Barbara Co.)[3]	Pesticides, Nutrients
Furlong Creek[2,3]	Pesticides, Nutrients, Turbidity
Gabilan Creek[2,3]	Toxicity, Nutrients, Turbidity
Glen Annie Canyon[3]	Toxicity, Nutrients

Greene Valley Creek (Santa Barbara Co.) [2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Kings Creek[2]	Sediment
Little Oso Flaco Creek[3]	Toxicity, Nutrients
Llagas Creek (below Chesbro Reservoir) [2,3]	Pesticides, Nutrients, Sediment, Turbidity
Lompico Creek[2]	Nutrients, Sediment
Los Berros Creek	Nutrients
Los Carneros Creek	Nutrients
Los Osos Creek[2]	Nutrients, Sediment
Love Creek[2]	Sediment
Main Street Canal[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
McGowan Ditch	Nutrients
Merrit Ditch[2,3]	Toxicity, Nutrients, Turbidity
Millers Canal[2,3]	Pesticides, Turbidity, Temperature
Mission Creek (Santa Barbara Co.)[3]	Toxicity
Monterey Harbor[3]	Toxicity
Moro Cojo Slough[2,3]	Pesticides, Nutrients, Sediment
Morro Bay[2]	Sediment
Moss Landing Harbor[2,3]	Toxicity, Pesticides, Sediment
Mountain Charlie Gulch[2]	Sediment
Natividad Creek[2,3]	Toxicity, Nutrients, Turbidity, Temperature
Newell Creek (Upper) [2]	Sediment
Nipomo Creek[3]	Toxicity, Nutrients
North Main Street Channel	Nutrients
Old Salinas River Estuary[3]	Pesticides, Nutrients
Old Salinas River[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Orcutt Creek[2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Oso Flaco Creek[3]	Toxicity, Nutrients
Oso Flaco Lake[3]	Pesticides, Nutrients
Pacheco Creek[2]	Turbidity
Pacific Ocean (Point Ano Nuevo to Soquel Point)[3]	Pesticides
Pajaro River[2,3]	Pesticides, Nutrients, Sediment, Turbidity
Prefumo Creek[2]	Nutrients, Turbidity
Quail Creek[2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Rider Creek[2]	Sediment
Rincon Creek[2,3]	Toxicity, Turbidity

Rodeo Creek Gulch[2]	Turbidity
Salinas Reclamation Canal[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920) [2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River) [2,3]	Toxicity, Pesticides, Turbidity, Temperature
Salinas River Lagoon (North) [3]	Pesticides, Nutrients
Salinas River Refuge Lagoon (South) [2]	Turbidity
Salsipuedes Creek (Santa Cruz Co.) [2]	Turbidity
San Antonio Creek (below Rancho del las Flores Bridge at Hwy 135) [3]	Pesticides, Nutrients
San Benito River[2,3]	Toxicity, Sediment
San Juan Creek (San Benito Co.) [2,3]	Toxicity, Nutrients, Turbidity
San Lorenzo River[2,3]	Pesticides, Nutrients, Sediment
San Luis Obispo Creek (below Osos St.) [3]	Pesticides, Nutrients
San Simeon Creek	Nutrients
San Vicente Creek (Santa Cruz Co.) [2]	Sediment
Santa Maria River[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Santa Rita Creek (Monterey Co.) [2]	Nutrients, Turbidity
Santa Ynez River (below city of Lompoc to Ocean)[2]	Nutrients, Sediment, Temperature
Santa Ynez River (Cachuma Lake to below city of Lompoc)	Sediment, Temperature
Schwan Lake	Nutrients
Shingle Mill Creek[2]	Nutrients, Sediment
Shuman Canyon Creek[2]	Sediment
Soda Lake	Nutrients
Soquel Creek[2]	Turbidity
Soquel Lagoon[2]	Sediment
Tembladero Slough[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Tequisquita Slough[2]	Turbidity
Uvas Creek (below Uvas Reservoir) [2]	Turbidity
Valencia Creek[2]	Sediment
Warden Creek	Nutrients
Watsonville Creek	Nutrients
Watsonville Slough[2,3]	Pesticides, Turbidity
Zayante Creek[2,3]	Pesticides, Sediment

[1]Dischargers with operations located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, turbidity or sediment on the 2010 List of Impaired Waterbodies are included as Tier 2 or Tier 3;

[2]Tier 2 and Tier 3 Dischargers with operations adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment must conduct photo monitoring, and Tier 3 Dischargers must also implement a Water Quality Buffer Plan.
[3]Dischargers who apply chemicals known to cause toxicity to surface water to an operation that discharges to a waterbody on the 2010 303(d) List of Impaired Waterbodies for toxicity or pesticides must meet conditions in this Order for Tier 3.

Table 2. Time Schedule for Compliance with Conditions for All Dischargers (Tier 1, Tier 2, and Tier 3)

CONDITIONS	COMPLIANCE DATE[1]
Submit Notice of Intent (NOI)	Within 30 days of adoption of Order or Within 30 days acquiring ownership/ control, and prior to any discharge or commencement of activities that may cause discharge.
Submit Update to NOI	Within 30 days, upon adoption of Order and upon change
Submit Notice of Termination	Immediately, when applicable
Submit Monitoring Reports per MRP	Per date in MRP
Implement, and update as necessary, management practices to achieve compliance with this Order.	Ongoing
Protect existing aquatic habitat to prevent discharge of waste	Immediately
Submit surface receiving water quality monitoring annual report	Within one year, and annually thereafter by January 1
Develop/update and implement Farm Plan	October 1, 2012
Install and maintain adequate backflow prevention devices.	October 1, 2012
Submit groundwater sampling results and information	October 1, 2013
Properly destroy abandoned groundwater wells.	October 1, 2015

Table 3. Additional Time Schedule for Compliance with Conditions Tier 2 and Tier 3 Dischargers

CONDITIONS	COMPLIANCE DATE
Tier 2 and Tier 3:	
Submit electronic Annual Compliance Form	October 1, 2012, and updated annually thereafter by October 1.
Submit photo documentation of riparian or wetland area habitat (if operation contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	October 1, 2012, and every four years thereafter by October 1.
Calculate Nitrate Loading Risk level and report in electronic Annual Compliance Form	October 1, 2012, and annually thereafter by October 1.
Submit total nitrogen applied in electronic Annual Compliance Form (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter by October 1.
Only Tier 3:	
Initiate individual surface water discharge monitoring	October 1, 2011
Determine Crop Nitrogen Uptake (if discharge has High Nitrate Loading Risk)	October 1, 2012
Submit individual surface water discharge monitoring data	October 1, 2013 and annually thereafter by October 1
Develop Irrigation and Nutrient Management Plan (INMP) or alternative (if discharge has High Nitrate Loading Risk)	October 1, 2013
Submit INMP elements in electronic Annual Compliance Form (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter by October 1
Achieve Nitrogen Balance Ratio target equal to one (1) for crops in annual rotation (e.g. cool season vegetables) or alternative, (if discharge has High Nitrate Loading Risk)	October 1, 2014
Achieve Nitrogen Balance Ratio target equal to 1.2 for annual crops occupying the ground for the entire year (e.g. strawberries or raspberries) or alternative, (if discharge has High Nitrate Loading Risk)	
Submit Water Quality Buffer Plan or alternative (if operation contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	October 1, 2015
Submit INMP Effectiveness Report (if discharge has High Nitrate Loading Risk)	October 1, 2015

Table 4. Time Schedule for Milestones

MILESTONES[1]	DATE
Tier 1, Tier 2 and Tier 3:	
Measurable progress towards water quality standards in waters of the State or of the United States[1], or	Ongoing
Water quality standards met in waters of the State or of the United States.	October 1, 2015
Only Tier 3:	
Pesticide and Toxic Substances Waste Discharges to Surface Water	
- One of two individual surface water discharge monitoring samples is not toxic	*October 1, 2012*
- Two of two individual surface water discharge monitoring samples are not toxic	*October 1, 2013*
Sediment and Turbidity Waste Discharges to Surface Water	
- Four individual surface water discharge monitoring samples are collected and analyzed for turbidity.	*October 1, 2012*
- 75% reduction in turbidity or sediment load in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for turbidity or sediment in individual surface water discharge)	*October 1, 2013*
Nutrient Waste Discharges to Surface Water	
- Four individual surface water discharge monitoring samples are collected and analyzed	*October 1, 2012*
- 50% load reduction in nutrients in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for nutrients in individual discharge)	*October 1, 2013*

- 75% load reduction in nutrients in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for nutrients in individual surface water discharge)	*October 1, 2014*
Nitrate Waste Discharges to Groundwater *- Achieve annual reduction in nitrogen loading to groundwater based on Irrigation and Nutrient Management Plan effectiveness and load evaluation*	*October 1, 2013 and annually thereafter*

[1] Indicators of progress towards milestones includes, but is not limited to data and information related to a) management practice implementation and effectiveness, b) treatment or control measures, c) individual discharge monitoring results, d) receiving water monitoring results, and e) related reporting.

DRAFT FOR MARCH 17, 2011 BOARD CONSIDERATION

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

ORDER NO. R3-2011-0006
ATTACHMENT A

ADDITIONAL FINDINGS, APPLICABLE WATER QUALITY CONTROL PLANS AND DEFINITIONS FOR CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

Order No. R3-2011-0006 (Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands) requires Dischargers to comply with applicable state plans and policies and applicable state and federal water quality standards and to prevent nuisance. Water quality standards are set forth in state and federal plans, policies, and regulations. The California Regional Water Quality Control Board Central Coast Region's (Central Coast Water Board) Water Quality Control Plan contains specific water quality objectives, beneficial uses, and implementation plans that are applicable to discharges of waste and/or waterbodies that receive discharges of waste from irrigated lands. The State Water Resources Control Board (State Water Board) has adopted plans and policies that may be applicable to discharges of waste and/or surface waterbodies or groundwater that receive discharges of waste from irrigated lands. The United States Environmental Protection Agency (USEPA) has adopted the *National Toxics Rule* and the *California Toxics Rule*, which constitute water quality criteria that apply to waters of the United States.

The specific waste constituents required to be monitored and the applicable water quality standards that protect identified beneficial uses for the receiving water are set forth in Monitoring and Reporting Program (MRP) Order No. R3-2011-0006-01, MRP Order No. R3-2011-0006-02, and MRP Order No. R3-2011-0006-03.

This Attachment A lists additional findings (Part A), relevant plans, policies, regulations (Part B), and definitions of terms (Part C) used in Order No. R3-2011-0006.

PART A. ADDITIONAL FINDINGS

The California Regional Water Quality Control Board, Central Coast Region additionally finds that:

1. The Central Coast Water Board is the principal state agency in the Central Coast Region with primary responsibility for the coordination and control of water quality. (Cal. Wat. Code § 13001, Legislative Intent) The purpose of this Order is to is focus on the highest water quality priorities and maximize water quality protection to ensure the long-term reliability and availability of water resources of sufficient supply and quality for all present and future beneficial uses, including drinking water and aquatic life. Given the magnitude and severity of water quality impairment and impacts to beneficial uses caused by irrigated agriculture and the significant cost to the public, the Central Coast Water Board finds that it is reasonable and necessary to require specific actions to protect water quality.

2. The Central Coast Water Board recognizes that Dischargers may not achieve immediate compliance with all requirements. Thus, this Order provides reasonable schedules for Dischargers to reach full compliance over many years by implementing management practices and monitoring and reporting programs that demonstrate and verify measurable progress annually. This Order includes specific dates to achieve compliance with this Order and milestones that will reduce pollutant loading or impacts to surface water and groundwater in the short term (e.g., a few years) and achieve water quality standards in surface water and groundwater in the longer term (e.g., decades); some compliance dates extend beyond the term of this Order. The focus of this Order is non-tiledrain discharges. The Central Coast Water Board anticipates evaluating longer timeframes to address tile-drain discharges for inclusion in a subsequent Agricultural Order.

3. According to California Water Code Section 13263(g), the discharge of waste to waters of the State is a privilege, not a right. It is the responsibility of dischargers of waste from irrigated lands to comply with the Water Code by seeking waste discharge requirements (WDRs) or by complying with a waiver of WDRs. This Order waiving the requirement to obtain WDRs provides a mechanism for dischargers of waste from irrigated lands to meet their responsibility to comply with the Water Code and to prevent degradation of waters of the State, prevent nuisance, and to protect the beneficial uses. Dischargers are responsible for the quality of surface waters and ground waters that have received discharges of waste from their irrigated lands.

AGRICULTURAL AND WATER RESOURCES IN THE CENTRAL COAST REGION

4. In the Central Coast Region, nearly all agricultural, municipal, industrial, and domestic water supply comes from groundwater. Groundwater supplies approximately 90 percent of the drinking water on the Central Coast. Currently, more than 700 municipal public supply wells in the Central Coast Region provide drinking water to the public. In addition, based on 1990 census data, there are more than 40,000 permitted private wells in the Region, most providing domestic drinking water to rural households and communities from shallow sources. The number of private domestic wells has likely significantly increased in the past 20 years due to population growth.

5. In the Salinas, Pajaro, and Santa Maria groundwater basins, agriculture accounts for approximately 80 to 90 percent of groundwater pumping (MCWRA, 2007; PVWMA, 2002; Luhdorff and Scalmanini Consulting Engineers. April 2009).

6. The Central Coast Region supports some of the most significant biodiversity of any temperate region in the world and is home to the last remaining population of the California sea otter, three sub-species of threatened or endangered steelhead (*Oncorhynchus mykiss*) and one sub-species of endangered coho salmon (*Oncorhynchus kisutch*). The endangered marsh sandwort (*Arenaria paludicola*), Gambel's watercress (*Nasturtium rorippa gambelii*), California least tern (*Sterna antillarum browni*), and threatened red-legged frog (*Rana aurora*) are present in the region.

7. Several watersheds drain into Monterey Bay National Marine Sanctuary, one of the largest marine sanctuaries in the world. Elkhorn Slough is one of the largest remaining tidal wetlands in the United States and one of the National Oceanic and Atmospheric Administration (NOAA) designated National Estuarine Research Reserves. The southern portion includes the Morro Bay National Estuary and its extensive salt marsh habitat.

8. The two endangered plants, marsh sandwort and Gambel's watercress, are critically imperiled and their survival depends upon the health of the Oso Flaco watershed. The last remaining known population of marsh sandwort and one of the last two remaining known populations of Gambel's watercress occur in Oso Flaco Lake (United States Department of the Interior Fish and Wildlife Service, 2007).

9. The Central Coast of California is one of the most productive and profitable agricultural regions in the nation, reflecting a gross production value of more than six billion dollars in 2008 and contributing to more than 14 percent of California's agricultural economy. The region 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. An adequate water supply of sufficient quality is critical to supporting the agricultural industry on the Central Coast.

LEGAL AND REGULATORY CONSIDERATIONS

10. This Attachment A to Order No. R3-2011-0006 identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory requirements that apply to the discharge of waste from irrigated lands. This Attachment A also provides definitions of terms for purposes of this Order.

11. The Porter-Cologne Water Quality Control Act grants authority to the State Water Board with respect to State water rights and water quality regulations and policy, and establishes nine Regional Water Boards with authority to regulate discharges of waste that could affect the quality of waters of the State and to adopt water quality regulations and policy.

12. As further described in the Order, discharges from irrigated lands affect the quality of the waters of the State depending on the quantity of the waste discharge, quantity of the waste, the quality of the waste, the extent of treatment, soil characteristics, distance to surface water, depth to groundwater, crop type, implementation of management practices and other site-specific factors. Discharges from irrigated lands have impaired and will continue to impair the quality of the waters of the State within the Central Coast Region if such discharges are not controlled.

13. Water Code Section 13267(b)(1) authorizes the Central Coast Water Board to require dischargers to submit technical reports necessary to evaluate Discharger compliance with the terms and conditions of this Order and to assure protection of waters of the State. The Order, this Attachment A, and the records of the Water Board provide the evidence demonstrating that discharges of waste from irrigated lands have degraded and/or polluted the waters of the state. Persons subject to this Order discharge waste from irrigated lands that impacts the quality of the waters of the state. Therefore it is reasonable to require such persons to prepare and submit technical reports.

14. Water Code Section 13269 provides that the Central Coast Water Board may waive the requirement in Water Code section 13260(a) to obtain WDRs. Water Code section 13269 further provides that any such waiver of WDRs shall be conditional, must include monitoring requirements unless waived, may not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board or Executive Officer.

15. Water Code Section 13269(a)(4)(A) authorizes the Central Coast Water Board to include as a condition of a conditional waiver the payment of an annual fee established by the State Water Board. California Code of Regulations, Title 23, Division 3, Chapter 9, Article 1, Section 2200.3 sets forth the applicable fees. The Order requires each Discharger to pay an annual fee to the State Water Board in compliance with the fee schedule.

16. The Water Quality Control Plan for the Central Coast Basin (Basin Plan) designates beneficial uses, establishes water quality objectives, contains programs of implementation needed to achieve water quality objectives, and references the plans and policies adopted by the State Water Board. The water quality objectives are required to protect the beneficial uses of waters of the State identified in this Attachment A.

17. The Order is consistent with the Basin Plan because it requires Dischargers to comply with applicable water quality standards, as defined in this Attachment A, and requires terms and conditions, including implementation of management practices. The Order also requires monitoring and reporting as defined in MRP Order No. R3-2011-0006-01, MRP Order No. R3-2011-0006-02, and MRP Order No. R3-2011-03 to determine the effects of discharges of waste from irrigated lands on water quality, verify the adequacy and effectiveness of this Order's terms and conditions, and to evaluate individual Discharger's compliance with this Order.

18. Water Code Section 13246 requires boards, in carrying out activities that affect water quality to comply with State Water Board policy for water quality control. This Order requires compliance with applicable State Water Board policies for water quality control.

19. This Order is consistent with the requirements of the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Policy) adopted by the State Water Board in May 2004. The NPS Policy requires, among other key elements, that an NPS control implementation program's ultimate purpose shall be explicitly stated and that the implementation program must, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable anti-degradation requirements. The NPS Policy improves the State's ability to effectively manage NPS pollution and conform to the requirements of the Federal Clean Water Act and the Federal Coastal Zone Act Reauthorization Amendments of 1990. The NPS Policy provides a bridge between the State Water Board's January 2000 *NPS Program Plan* and its 2010 *Water Quality Enforcement Policy*. The NPS Policy's five key elements are:

    a. Key Element #1 - Addresses NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses

b. Key Element #2 - Includes an implementation program with descriptions of the Management Practices (MPs) and other program elements and the process to be used to ensure and verify proper MP implementation
c. Key Element #3 - Includes a specific time schedule and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements
d. Key Element #4 - Contains monitoring and reporting requirements that allow the Water Board, dischargers, and the public to determine that the program is achieving its stated purpose(s) and/or whether additional or different MPs or other actions are required
e. Key Element #5 - Clearly discusses the potential consequences for failure to achieve the NPS control implementation program's stated purposes

20. Consistent with the NPS Policy, management practice implementation assessment may, in some cases, be used to measure nonpoint source control progress. However, management practice implementation never may be a substitute for meeting water quality requirements.

21. This Order is consistent with provisions of State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Regional boards, in regulating the discharge of waste, must maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies. The Order will result in improved water quality throughout the region. 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. The conditions of this waiver will protect high quality waters and restore waters that have already experienced some degradation.

22. This Order is consistent with State Water Board Resolution 68-16. This Order requires Dischargers to 1) comply with the terms and conditions of the Order and meet applicable water quality standards in the waters of the State; 2) develop and implement management practices, treatment or control measures, or change farming practices, when discharges are causing or contributing to exceedances of applicable water quality standards; 3) conduct activities in a manner to prevent nuisance; and 4) conduct activities required by MRP Order No. R3-2011-0006-01, MRP Order No. R3-2011-0006-02, and MRP Order No. R3-2011-0006-03, and revisions thereto.

RATIONALE FOR THIS ORDER

23. On April 15, 1983, the Central Coast Water Board approved a policy waiving WDRs for 26 categories of discharges, including irrigation return flows and non-NPDES stormwater runoff. Pursuant to Water Code Section 13269, these waivers terminated on January 1, 2003.

24. On July 9, 2004, the Central Coast Water Board adopted Resolution No. R3-2004-0117 establishing the 2004 Agricultural Order.

25. Dischargers enrolled in the 2004 Agricultural Order established the Cooperative Monitoring Program (CMP) in compliance with monitoring requirements. The CMP collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds and identified severe surface water quality impairments resulting from agricultural land uses and discharges. CMP did not attempt to identify the individual farm operations that are causing the surface water quality impairments. The lack of discharge monitoring and reporting, the lack of verification of on-farm water quality improvements, and the lack of public transparency regarding on-farm discharges, are critical limitations of the 2004 Agricultural Order, especially given the scale and severity of the surface water and groundwater impacts and the resulting costs to society. The Order addresses these limitations.

26. The Central Coast Water Board extended the 2004 Agricultural Order on July 10, 2009, and again on July 8, 2010, as documented in Order No. R3-2009-0050 and Order No. R3-2010-0040. The 2004 Agricultural Order expires on March 31, 2011.

27. The Central Coast Water Board reviewed all available data, including information collected in compliance with the 2004 Agricultural Order, and determined that discharges of waste from irrigated lands continue to result in degradation and pollution of surface water and groundwater, and impairment of beneficial uses, including drinking water and aquatic habitat, and determined that additional conditions are necessary to ensure protection of water quality and to measure the effectiveness of implementation of the Order.

28. It is appropriate to adopt a waiver of WDRs for this category of discharges because, as a group, the discharges have the same or similar waste from the same or similar operations and use the same or similar treatment methods and management practices (e.g., source control, reduced agricultural surface runoff, reduced chemical use, holding times, cover crops, etc.).

29. It is appropriate to regulate discharges of waste from irrigated lands under a conditional waiver rather than individual WDRs in order to simplify and streamline the regulatory process. Water Board staff estimate that there are more than 3000 individual owners and/or operators of irrigated lands who discharge waste from

irrigated lands; therefore, it is not an efficient use of resources to adopt individual WDRs for all Dischargers within a reasonable time.

30. This Order is in the public interest because:

    a. The Order was adopted in compliance with Water Code Sections 13260, 13263, and 13269 and other applicable law;
    b. The Order requires compliance with water quality standards;
    c. The Order includes conditions that are intended to eliminate, reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the State;
    d. The Order contains more specific and more stringent conditions for protection of water quality compared to the 2004 Agricultural Order;
    e. The Order contains conditions that are similar to the conditions of municipal stormwater NPDES permits, including evaluation and implementation of management practices to meet applicable water quality standards and a more specific MRP;
    f. The Order focuses on the highest priority water quality issues and most severely impaired waters;
    g. The Order provides for an efficient and effective use of Central Coast Water Board resources, given the magnitude of the discharges and number of persons who discharge waste from irrigated lands;
    h. The Order provides reasonable flexibility for the Dischargers who seek coverage under this Order by providing them with a reasonable time schedule and options for complying with the Water Code.

31. This Order waives the requirement to obtain WDRs for discharges of waste from irrigated lands. This Order is conditional, may be terminated at any time, does not permit any illegal activity, does not preclude the need for permits that may be required by other State or local government agencies, and does not preclude the Central Coast Water Board from administering enforcement remedies (including civil liability) pursuant to the Water Code.

32. The Central Coast Water Board may consider issuing individual WDRs to some Dischargers because of their actual or potential contribution to water quality impairments, history of violations, or other factors.

IMPACTS TO WATER QUALITY FROM AGRICULTURAL DISCHARGES

Impacts to Groundwater – Drinking Water and Human Health

33. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the primary source of nitrate pollution of drinking water wells and that significant

loading of nitrate continues as a result of agricultural fertilizer practices (Carle, S.F., et. al., June 2006).

34. Groundwater pollution from nitrate severely impacts public drinking water supplies in the Central Coast Region. A Department of Water Resources (DWR, 2003) survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast Region found that 17 percent of the wells (121 wells) detected a constituent at concentrations above one or more California Department of Public Health (CDPH) drinking water standards or primary maximum contaminant levels (MCLs). Nitrate caused the most frequent MCL exceedances (45 mg/L nitrate as nitrate or 10 mg/L nitrate as nitrogen), with approximately 9 percent of the wells (64 wells) exceeding the drinking water standard for nitrate. According to data reported by the State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA) GeoTracker website (http://www.waterboards.ca.gov/gama/), recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells impacted) and Santa Maria (approximately 17 percent) groundwater basins. In the Gilroy-Hollister Groundwater Basin, 12.5 percent of the public supply wells are impacted (data obtained using the GeoTracker DPH Public Supply Well Search Tool for nitrate for wells located in the Gilroy-Hollister groundwater basin. The well data includes Department of Public Health data for well sampling information ranging from 2006 until 2009). CDPH identified over half of the drinking water supply wells as vulnerable to discharges from agricultural-related activities in that basin. This information is readily tracked and evaluated because data are collected on a regular frequency, made publicly available, and public drinking water supplies are regulated by CDPH as required by California law.

35. Groundwater pollution from nitrate severely impacts shallow domestic wells in the Central Coast Region resulting in unsafe drinking water in rural communities. Domestic wells (wells supplying one to several households) are typically drilled in relatively shallow groundwater, and as a result exhibit higher nitrate concentrations than deeper public supply wells. Water quality monitoring of domestic wells is not generally required and water quality information is not readily available; however, based on the available data, the number of domestic wells that exceed the nitrate drinking water standard is likely in the range of hundreds or thousands. Private domestic well water quality is not regulated and rural residents are likely drinking water from these impaired sources without treatment and without knowing the quality of their drinking water.

36. In the northern Salinas Valley, 25 percent of 352 wells sampled (88 wells) had concentrations above the nitrate drinking water standard. In other portions of the Salinas Valley, up to approximately 50 percent of the wells surveyed had concentrations above the nitrate drinking water standard, with average

concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water standard (Monterey County Water Resources Agency [MCWRA], 1995). Nitrate exceedances in the Gilroy-Hollister and Pajaro groundwater basins reflect similar severe impairment, as reported by local water agencies/districts for those basins (SCVWD, 2001; SWRCB, 2005; San Benito County Water District, 2007; Kennedy/Jenks Consultants, 2008).

37. Local county and water district reports indicate that in the Pajaro River watershed, the highest recent nitrate concentration (over 650 mg/L nitrate, more than 14 times the drinking water standard) occurred in shallow wells in the eastern San Juan subbasin under intense agricultural production. High values of nitrate concentration in groundwater (greater than 500 mg/L nitrate) have also been reported in the Llagas subbasin and the lower Pajaro coastal aquifer.

38. The costs of groundwater pollution and impacts to beneficial uses caused by irrigated agriculture are transferred to the public. Public drinking water systems expend millions of dollars in treatment and replacement costs and private well owners must invest in expensive treatment options or find new sources. Rural communities, those least able to buy alternative water sources, have few options to replace the contaminated water in their homes. This Order addresses groundwater pollution to ensure protection of beneficial uses and public health.

39. Excessive concentrations of nitrate or nitrite in drinking water are hazardous to human health, especially for infants and pregnant women. The United States Environmental Protection Agency (USEPA) established a nitrate drinking water standard of 45 mg/L nitrate as nitrate (10 mg/L nitrate as nitrogen). While acute health effects from excessive nitrate levels in drinking water are primarily limited to infants (methemoglobinemia or "blue baby syndrome"), research evidence suggests there may be adverse health effects (i.e., increased risk of non-Hodgkin’s, diabetes, Parkinson’s disease, alzheimers, endrocrine disruption, cancer of the organs) among adults as a result of long-term consumption exposure to nitrate (Sohn, E., 2009; Pelley, J., 2003; Weyer, P., et. al., 2001, Ward, M.H., et. al., 1996) .

40. Nitrogen compounds are known to cause cancer. University of Iowa research found that up to 20 percent of ingested nitrate is transformed in the body to nitrite, which can then undergo transformation in the stomach, colon, and bladder to form N-nitroso compounds that are known to cause cancer in a variety of organs in more than 40 animal species, including primates (Weyer, P., et. al., 2001).

41. In many cases, whole communities that rely on groundwater for drinking water are threatened due to nitrate pollution, including the community of San Jerardo and other rural communities in the Salinas Valley. Local agencies and consumers

have reported impacts to human health resulting from nitrate contaminated groundwater likely due to agricultural land uses, and spent significant financial resources to ensure proper drinking water treatment and reliable sources of safe drinking water for the long-term (CCRWQCB, 2009).

42. Current strategies for addressing nitrate in groundwater to achieve levels protective of human health typically include avoidance (abandoning impacted wells or re-drilling to a deeper zone), groundwater treatment to remove nitrate (i.e., dilution using blending, ion exchange, reverse osmosis, biological denitrification, and distillation), or developing additional water supplies (i.e., percolation ponds, surface water pipelines, reservoirs) to dilute nitrate-impacted sources (Lewandowski, A.M., May 2008; Washington State Department of Health, 2005).

43. The costs to treat and clean up existing nitrate pollution to achieve levels that are protective of human health are very expensive to water users (e.g., farmers, municipalities, domestic well users). Research indicates that the cost to remove nitrate from groundwater can range from hundreds of thousands to millions of dollars annually for individual municipal or domestic wells (Burge and Halden, 1999; Lewandowski, May 2008). Wellhead treatment on a region-wide scale is estimated to cost billions of dollars. Similarly, the cost to actively clean up nitrate in groundwater on a region wide scale would also cost billions of dollars, and would be logistically difficult. If the nitrate loading due to agricultural activities is not significantly reduced, these costs are likely to increase significantly.

44. Many public water supply systems are required to provide well-head treatment or blending of drinking water sources, at significant cost, to treat nitrate before delivery to the drinking water consumer due to elevated concentrations of nitrate in groundwater. The community of San Jerardo (rural housing cooperative of primarily low-income farmworker families with approximately 250 residents) initially installed well-head treatment to treat groundwater contaminated with nitrate and other chemicals at significant cost, with on-going monthly treatment costs of approximately $17,000. Monterey County public health officials determined that the community of San Jerardo requires a new drinking water well to ensure safe drinking water quality protective of public health at an approximate cost of more than $4 million. The City of Morro Bay uses drinking water supplies from Morro and Chorro groundwater basins. Study results indicate that agricultural activities in these areas, predominantly over-application of fertilizer, have impacted drinking water supplies resulting in nitrate concentrations more than four times the drinking water standard (Cleath and Associates, 2007). The City of Morro Bay must blend or provide well-head treatment to keep nitrate concentrations at levels safe for drinking water at significant cost (City of Morro Bay, 2006). The City of Santa Maria public supply wells are also impacted by nitrate (in some areas nearly twice the drinking water standard) and must also blend sources to provide safe drinking water (City of Santa Maria, 2008).

Impacts to Groundwater – Nitrate and Salts

45. Groundwater pollution due to salts is also one of the most significant and critical problems in the Central Coast Region. Agricultural activities are a significant cause of salt pollution (Monterey County Flood Control and Water Conservation District, 1990), primarily due to the following:

    a. Seawater intrusion within the coastal basins (e.g., Salinas and Pajaro groundwater basins) caused by excessive agricultural pumping (MCWRA, 2007).
    b. Agricultural pumping/recycling of groundwater that concentrates salts in the aquifers.
    c. Agricultural leaching of salts from the root zone.
    d. The importation of salts into the basin from agricultural soil amendments and domestic/municipal wastewater discharges.

46. Based on the high proportion of groundwater extractions, agricultural pumping of groundwater contributes to saltwater intrusion into the Salinas and Pajaro groundwater basins, which is causing increasing portions of the groundwater basins to be unusable for agriculture and municipal supply (MCWRA, 2008 and Pajaro Valley Water Resource Agency, 2002).

47. Agricultural activities contribute significant loading of nitrates into groundwater from the following sources (Monterey County Flood Control and Water Conservation District, 1988):

    a. Intensive fertilizer applications on permeable soils.
    b. Liquid fertilizer hookups on well pump discharge lines lacking backflow prevention devices.
    c. Groundwater wells that are screened through multiple aquifers, thereby acting as conduits for pollution transport into deeper groundwater.
    d. Spills and/or uncontrolled wash water or runoff from fertilizer handling and storage operations.

48. Agricultural waste discharges contribute to pollution of groundwater basins most vulnerable to waste migration, including major portions of the Santa Maria, Salinas, and Gilroy-Hollister groundwater basins. However, any groundwater basin, including those that are confined (pressured), are susceptible to downward waste migration through improperly constructed, operated (e.g., fertigation or chemigation without backflow prevention), or abandoned wells. Additionally, land with permeable soils and shallow groundwater are susceptible to downward waste migration. Such areas of groundwater vulnerability often overlap with important recharge areas that serve to replenish drinking water supplies.

49. Agricultural discharges of fertilizer are the main source of nitrate pollution to shallow groundwater based on nitrate loading studies conducted in the Llagas subbasin and the lower Salinas groundwater basin (Carle, S.F., et al., June 2006). In 2007, the California Department of Food and Agriculture (CDFA) reported that approximately 56 million pounds of nitrogen were purchased as fertilizer in Monterey County. A 1990 Monterey County study of nitrate sources leaching to soil and potentially groundwater in Santa Cruz and Monterey Counties indicated that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in these areas (Monterey County Flood Control and Water Conservation District, November 1990).

50. A groundwater study in the Llagas subbasin indicates that nitrate pollution in groundwater is elevated in the shallow aquifer because it is highly vulnerable due to high recharge rates and rapid transport, and that the dominant source of nitrate is synthetic fertilizers. Groundwater age data in relation to nitrate concentration indicate that the rate of nitrate loading to the shallow aquifer is not yet decreasing in the areas sampled. In areas east of Gilroy, groundwater nitrate concentrations more than double the drinking water standard correspond to younger groundwater ages (less than seven years old and in some cases less than two years old), indicating that the nitrate pollution is due to recent nitrate loading and not legacy farming practices (Moran et al., 2005).

51. The University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index) in 1995. The Nitrate Hazard Index identifies agricultural fields with the highest vulnerability for nitrate pollution to groundwater, based on soil, crop, and irrigation practices. Based on the Nitrate Hazard Index, the following crop types present the greatest risk for nitrate loading to groundwater: Beet, Broccoli, Cabbage, Cauliflower, Celery, Chinese Cabbage (Napa),Collard, Endive, Kale, Leek, Lettuce, Mustard, Onion, Spinach, Strawberry, Pepper, and Parsley.

Impacts to Groundwater – Pesticides

52. The Department of Pesticide Regulation (DPR) has identified two Groundwater Protection Areas that are vulnerable to pesticide contamination in San Luis Obispo County (south of Arroyo Grande, west of Nipomo Mesa, and north of the Santa Maria River) and Monterey County (Salinas area).

53. Based on a 2007 DPR report, pesticide detections in groundwater are rare in the Central Coast region. Of 313 groundwater wells sampled in the Central Coast region, six wells (1.9%) had pesticide detections in less than two samples (considered unverified detections).

54. A review of DPR data collected from 1984 – 2009 indicates that the three pesticides/pesticide degradates with the highest detection frequency in groundwater were chlorthal-dimethyl and degradates (total), TPA (2,3,5,6-tetrachloroterephthalic acl) and carbon disulfide. Compounds reported by DPR above a preliminary health goal (PHG) or drinking water standard include (by county): ethylene dibromide (2002), atrazine (1993), and dinoseb (1987) Monterey; heptachlor (1989), ethylene dibromide (1989) Santa Barbara; benzene (various dates 1994-2007), 1,2,4-trichlorobenzene (1991) Santa Cruz; ethylene dibromide (1994, 2008, 2009) San Luis Obispo; and 1,1,2,2-tetrachloroethane (1998) Santa Clara.

55. Results from pesticide analyses conducted as part of the Groundwater Ambient Monitoring and Assesment Program (GAMA) studies in the Central Coast region (Kulongoski, 2007; Mathany 2010) indicate a significant presence of pesticides in groundwater. GAMA achieved ultra-low detection levels of between 0.004 and 0.12 micrograms per liter (generally less than .01 micrograms per liter). Out of 54 wells sampled in groundwater basins in the south coast range study unit (bounded by the Santa Lucia and San Luis Ranges, and San Raphael Mountains to the north and east, and the Santa Ynez mountains to the south), 28 percent of the wells had 11 pesticides or pesticide degradates detected in groundwater samples, with the three most abundant detections being deethylatrazine (18.5 percent), atrazine (9.3 percent), and simazine (5.6 percent). Twenty-eight percent of 97 wells sampled in the Monterey Bay and Salinas Valley Basins had pesticide detections, including 18 percent for simazine, 11 percent for deethylatrazine, and 5 percent for atrazine. None of the pesticides detected as part of the GAMA program exceeded any drinking water standard or health-based threshold value.

Impacts to Surface Water

56. The 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region (2010 List of Impaired Waterbodies) identified surface water impairments for approximately 700 waterbodies related to a variety of pollutants (e.g. salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment.

57. The impact from agricultural discharges on surface water quality is or has been monitored by various monitoring programs, including:

    a. The Central Coast Water Board's Ambient Monitoring Program: Over the past 10 years, the Central Coast Ambient Monitoring Program (CCAMP) has collected and analyzed water quality data to address 25 conventional water quality parameters from 185 sites across the Central Coast Region to assess surface water quality. To support analysis of conventional water quality data

CCAMP has collected bioassessment data from 100 of the 185 sites, water toxicity data from 134 of the 185 sites, and sediment toxicity from 57 of the 185 sites. CCAMP data show widespread toxicity and pollution in agricultural areas.

b. Cooperative Monitoring Program (CMP): Over the last five years, the CMP has focused on assessing agricultural water quality for the 2004 Agricultural Order, and collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds. CMP data show widespread toxicity and pollution in agricultural areas.

58. Data from CCAMP and CMP indicate that surface waterbodies are severely impacted in the lower Salinas and Santa Maria watersheds due to the intensive agricultural activity in these areas, and water quality in these areas are the most severely impaired in the Central Coast Region.

Impacts to Surface Water – Nutrients

59. Nitrate pollution in surface water is widespread in the Central Coast Region, with 46 waterbodies listed as impaired for this pollutant on the 2010 List of Impaired Waterbodies List. Seventy percent of these nitrate listings occur in the three major agricultural watersheds: Salinas area (16 waterbodies), Pajaro River (5 waterbodies) and Santa Maria River (12 waterbodies). Other significant nitrate listings fall in small drainages in areas of intensive agriculture or greenhouse activity along the south coast, including Arroyo Paredon, Franklin Creek, Bell Creek, Los Carneros and Glen Annie creeks (CCRWQCB, 2009a)

60. The California Department of Public Health (CDPH) drinking water standard is 10 mg/L nitrate as N. The drinking water standard is not intended to protect aquatic life and Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation based on an evaluation of CCAMP data (CCRWQCB, 2009b). Water Board staff used this criteria to evaluate surface water quality impairment to aquatic life beneficial uses in the 2010 Impaired Waterbodies List.

61. In a broadly scaled analysis of land uses, nitrate pollution is associated with row crop agriculture. In addition, discharge from even a single agricultural operation can result in adjacent creek concentrations exceeding the drinking water standard and the much lower limits necessary to protect aquatic life. Many heavily urbanized creeks show only slight impacts from nitrate, with most urban impact associated with wastewater discharges. (CCAMP, 2010a).

62. Agricultural discharges result in significant nitrate pollution in the major agricultural areas of the Central Coast Region (CCAMP, 2010a). More than sixty percent of all sites from CCAMP and CMP combined datasets have average nitrate

concentrations that exceed the drinking water standard and limits necessary to protect aquatic life (CCAMP, 2010b). Ten percent of all sites have average nitrate concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the following:

a. Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek),
b. Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek),
c. Lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain),
d. Lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel),
e. Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek).

63. Dry season flows decreased over the last five years in some agricultural areas that have large amounts of tailwater runoff. Detailed flow analysis by the CMP showed that 18 of 27 sites in the lower Salinas and Santa Maria watersheds had statistically significant decreases in dry season flow over the first five years of the program. Some sites that show increasing concentrations of nitrate have coincident declining trends in flow, possibly due to reductions in tailwater (CCWQP, 2009a). CCAMP monitoring has detected declining flows at other sites elsewhere in the Region through the end of 2009 (CCAMP, 2010a), likely because of drought.

64. Some statistically significant changes in nitrate concentration are evident in CCAMP and CMP data. Several drainages are improving in water quality in the Santa Barbara area (such as Bell Creek, which supports agricultural activities) and on Pacheco Creek in the Pajaro watershed. However, in some of the most polluted waters (Old Salinas River, Orcutt Creek, Santa Maria River mouth), nitrate concentrations are getting worse (CCAMP, 2010a). In the lower Salinas and Santa Maria watersheds, flow volumes are declining at some sites (CCWQP, 2009a; CCAMP, 2010a).

65. Nitrate concentrations in Oso Flaco Lake exceed the levels that support aquatic life beneficial uses, threatening remaining populations of two endangered plants, marsh sandwort and Gambel's watercress. In 25 water samples taken from Oso Flaco Lake in 2000-2001 and 2007, levels of nitrate/nitrite (as N) averaged 30.5 mg/L with a minimum of 22.0 mg/L and a maximum of 37.1 mg/L (CCAMP, 2010a). Biostimulation in Oso Flaco Lake has caused the rapid and extreme growth of common wetland species, which are now crowding out sensitive species that have not become similarly vigorous (United States Department of the Interior Fish and Wildlife Service, 2010).

66. Agricultural discharges result in un-ionized ammonia concentrations at levels that are toxic to salmonids at some sites in areas dominated by agricultural activity (USEPA, 1999). The waterbodies where these sites are located are on the 2010 List of Impaired Waterbodies due to un-ionized ammonia, particularly in the lower Salinas and Santa Maria river areas (CCRWQCB, 2009).

Impacts to Surface Water – Toxicity and Pesticides

67. The Basin Plan general objective for toxicity states the following: "All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal or aquatic life." The Basin Plan general objective for pesticides states the following: "No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life."

68. Based on CCAMP, CMP, and other monitoring data, multiple pesticides and herbicides have been detected in Central Coast surface waterbodies (identified below). This is a violation of the Basin Plan general objective for pesticides. Many currently applied pesticides have not been tested for, and staff is not aware of any fungicide data for the Central Coast Region. Additional monitoring for individual pesticides is needed to identify changes in pesticide loading and also to identify concentration of toxic substance not previously identified.

2,4-D	esfenvalerate	oryzalin
Alachlor	ethalfluralin	oxadiazon
Aldicarb	ethoprop	oxamyl
Atrazine	fenamiphos	oxyfluorfen
azinphos-methyl	fenoxycarb	paraquat dichloride
Benefin	fenpropathrin	pendimethalin
bentazon, sodium salt	fipronil	permethrin
Bifenthrin	glyphosate	phorate
Bromacil	hexazinone	phosmet
bromoxynil octanoate	hydramethylnon	prodiamine
butylate	imidacloprid	prometon
Carbaryl	lambda cyhalothrin	prometryn
Carbofuran	linuron	propanil
Chlorpyrifos	malathion	propargite
chlorthal-dimethyl	MCPA	propiconazole
cycloate	MCPA, dimethylamine salt	propoxur

Cyfluthrin	metalaxyl	propyzamide
Cypermethrin	methidathion	pyriproxyfen
DDVP	methiocarb	S.S.S-tributyl phosphorotrithioate
Deltamethrin	methomyl	siduron
Diazinon	methyl isothiocyanate	simazine
Dicamba	methyl parathion	tebuthiuron
Dicofol	metolachlor	terbuthylazine
Dimethoate	metribuzin	tetrachlorvinphos
Disulfoton	molinate	thiobencarb
Diuron	naled	triallate
Endosulfan	napropamide	triclopyr
EPTC	norflurazon	trifluralin

69. Multiple studies, including some using Toxicity Identification Evaluations (TIEs), have shown that organophosphate pesticides and pyrethroid pesticides in Central Coast waters are likely causing toxicity to fish and invertebrate test organisms (CCAMP, 2010a, CCWQP, 2008a; CCWQP, 2009; CCWQP, 2010a; CCWQP, 2010d (in draft); Hunt et al., 2003, Anderson, et al. 2003; Anderson et al., 2006b. This is a violation of the Basin Plan general objective for toxicity.

70. Agricultural use rates of pesticides in the Central Coast Region and associated toxicity is among the highest in the State. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation (DPR), the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected to be toxic and lethal to aquatic life (42 percent), and the highest rate (by three-fold) of active ingredients applied (113 lbs/acre) (Starner, et al. 2006).

71. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicated that toxicity resulting from agricultural waste discharges of pesticides has caused declining aquatic insect and macroinvertebrate populations in Central Coast streams (Anderson et al., 2003; Anderson et al., 2006a; Anderson et al., 2006b; Anderson et al., 2010). This is a violation of the Basin Plan general objective for toxicity.

72. The breakdown products of organophosphate pesticides are more toxic to amphibians than are the products themselves (Sparling and Fellers, 2007).

73. The lower Salinas and Santa Maria areas have more overall water column invertebrate toxicity than other parts of the Central Coast Region, with much of the toxicity explained by elevated diazinon and chlorpyrifos concentrations (CCAMP,

2010a, CCWQP, 2008a; CCWQP, 2009; Hunt et al., 2003, Anderson, et al. 2003; Anderson et al., 2006a). Some agricultural drains have shown toxicity nearly every time the drains are sampled (CCAMP, 2010a).

74. Fish and sand crabs from the Salinas, Pajaro, and Santa Maria estuaries had detectable levels of currently applied fungicides, herbicides, and legacy pesticides like DDT based on a recently completed study of these central coast lagoons Anderson et al. (2010). Multiple samples from the Santa Maria Estuary, the most impacted of the three estuaries, also contained chlorpyrifos, diazinon, and malathion (organophosphate pesticides) and bifenthrin and cyfluthrin (pyrethroid pesticides). Department of Public Health human consumption guideline levels for these pesticides in fish tissue are not available. This is the first study in this Region documenting these currently applied pesticides in fish tissue. The Basin Plan requires that "there shall be no increase in pesticide concentrations found in bottom sediments or **aquatic life** (emphasis added)".

75. The National Oceanic Atmospheric Administration National Marine Fisheries Service (NMFS) issued a Biological Opinion that concluded that US EPA's registration of pesticides containing chlorpyrifos, diazinon, and malathion is likely to jeopardize the continued existence of 27 endangered and threatened Pacific salmonids and is likely to destroy or adversely modify designated critical habitat for 25 threatened and endangered salmonids because of adverse effects on salmonid prey and water quality in freshwater rearing, spawning, migration, and foraging areas (NMFS, 2008)

76. Three court-ordered injunctions impose limitations on pesticide use (including chlorpyrifos, diazinon, and malathion) within certain proximity of waterbodies to protect endangered species (DPR, 2010).

77. Creek bottom sediments are most consistently toxic in the lower Salinas and Santa Maria watersheds, areas dominated by intensive agricultural activity. Seventy percent of sites sampled for sediment in the Central Coast region have been toxic at least once (although sites selected for sediment toxicity sampling typically represent higher risk areas) (CCAMP, 2010a).

78. A CMP follow-up study on sediment toxicity (CCWQP, 2010d, in draft) showed pyrethroid pesticides to be the most prevalent and severe source of toxicity to sediments. Santa Maria area sites averaged 7.5 toxic units (TUs) from pyrethroid pesticides and 1.3 TUs from chlorpyrifos. One TU is sufficient to kill 50% of the test organisms in a toxicity test). All Santa Maria area sites were toxic to test organisms. Second highest pesticide levels were found in Salinas tributaries and the Salinas Reclamation canal, averaging 5.4 TUs pyrethroids and 0.8 TUs chlorpyrifos. Organochlorine pesticides were present, but not at levels sufficient to cause toxicity.

79. Peer-reviewed research has also shown pyrethroid pesticides are a major source of sediment toxicity in agricultural areas of the Central Coast Region (Ng et al., 2008; Anderson et al., 2006a, Phillips et al., 2006; Starner et al., 2006).

80. Agricultural sources of metals are particulate emissions, irrigation water, pesticides, biosolids, animal manure, and fertilizer applied directly to the soil (Chang et al, 2004). Metals, including arsenic, boron, cadmium, copper, lead, nickel, and zinc are common active ingredients in many pesticides (Fishel, 2008; Nesheim, 2002; Holmgren, 1998; Reigert and Roberts, 1999). Metals can be present in subsurface drainage discharge and may be associated with sediment in tailwater discharge. Some phosphate fertilizers contain cadmium, which can lead to an increase in the concentration of cadmium in soil. Past studies have found soils containing high concentrations of cadmium and lead in major vegetable production areas of the Salinas Valley (Chang et al, 2004; Page et al, 1987; USEPA, 1978; Jelinek and Braude, 1978).

81. The Basin Plan contains the following general objective for Phenols, 0.1 mg/L or 100 µg/L. Phenols are components or breakdown products of a number of pesticide formulations, including 2,4 D, MCPA, carbaryl, propoxur, carbofuran, and fenthion (Crespin, et al., 2001, Agrawal, et al., 1999). Phenolic compounds can cause odor and taste problems in fish tissue, some are directly toxic to aquatic life, and some are gaining increasing notice as endocrine disruptors (e.g., bisphenol A and nonylphenol). The original water quality standards were developed in response to concerns about odor and taste and direct toxicity.

82. One phenolic compound of known concern in Central Coast waters is nonylphenol. Agricultural sources of nonylphenol and the related nonylphenol ethoxylates include pesticide products as “inert” ingredients and as adjuvants added by the pesticide user. Adjuvant ingredients are not reported in California's Pesticide Use Database. Adjuvants enhance a chemical’s effect. Nonylphenol and related compounds are used as surfactants to make the pesticide product more potent and effective (Cserhati, 1995). Nonylphenol and its ethoxylates are acutely toxic to a wide variety of animals, including aquatic invertebrates and fish. In some cases, the nonylphenol is more toxic to aquatic species than the pesticide itself (National Research Council of Canada, 1982). Concern exists about these adverse effects of nonylphenol and its ethoxylates increases because these compounds also bioaccumulate in algae, mussels, shrimp, fish, and birds (Ahel et al, 1993; Ekelund (1990).

83. The San Luis Obispo Science and Ecosystem Alliance (SLOSEA) at California Polytechnic State University has found nonylphenol in elevated concentrations in fish tissue and has linked the occurrence to gonadal abnormalities and liver damage in fish in Morro Bay and other Central Coast locations. The Basin Plan

standard of 100 µg/L for phenols is relatively protective for direct toxicity of nonylphenol to rainbow trout, which have an LC50 (lethal concentration impacting 50% of test organisms) of 194 µg/L. However, this limit is not protective for endocrine disruption purposes, which for rainbow trout is estimated at an EC50 (estrogenic concentration impacting 50% of test organisms) of 14.14 µg/L (Lech, 1996). Regardless of the limitations of the Basin Plan standard, it is important to assess this chemical in areas that are heavily influenced by agricultural activity.

Impacts to Surface Water – Turbidity and Temperature

84. Turbidity is a cloudy condition in water due to suspended silt or organic matter. Waters that exceed 25 nephalometric turbidity units (NTUs) can reduce feeding ability in trout (Sigler et al., 1984). Elevated turbidity during the dry season is an important measure of discharge across bare soil, and thus can serve as an indicator of systems with heavy irrigation runoff to surface waters.

85. The Basin Plan requires that "Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses" (CCRWQCB, 1994).

86. Most CCAMP sites outside of agricultural areas have a median turbidity level less than 5 NTUs (CCAMP, 2010a). Many sampling sites that include significant agricultural discharge have turbidity levels that exceed 100 NTUs as a median value (CCAMP, 2010a).

87. Agricultural discharges cause and contribute to sustained turbidity throughout the dry season at many sampling sites dominated by agricultural activities. Resulting turbidity greatly exceeds levels that impact the ability of salmonids to feed. Many of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds. The CMP detected some increasing trends in turbidity on the main stem of the Salinas River (CCRWQCB, 2009a; CCAMP, 2010a; CCWQP, 2009a).

88. Agricultural discharges and vegetation removal along riparian areas cause and contribute to water temperatures that exceed levels that are necessary to support salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. A good example of this is Orcutt Creek (CCAMP, 2010a), where upstream shaded areas are cooler than downstream exposed areas, in spite of lower upstream flows. Tailwater discharge and removal of riparian vegetation in downstream areas cause temperatures to rise above levels safe for trout. Several locations impacted by temperature are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers (CCAMP, 2010a).

89. Biological sampling shows that benthic biota are impaired in the lower Salinas and Santa Maria watersheds, and also shows that several measures of habitat quality, such as in-stream substrate and canopy cover, are poor compared to the upper watersheds and to other high quality streams in the Central Coast Region (CCWQP, 2009b; CCWQP, 2009c, CCWQP, 2009d; CCWQP, 2009e; CCAMP, 2010b)

90. Agricultural land use practices, such as removal of vegetation and stream channelization, and discharges from agricultural fields, can cause the deposition of fine sediment and sand over stream bottom substrate (Waters, 1995). This problem is especially prevalent in areas dominated by agricultural activity (lower Salinas and Santa Maria rivers) (CCWQP, 2009b; CCWQP, 2009c, CCWQP, 2009d; CCWQP, 2009e; CCAMP, 2010b). This deposition of fine sediment and sand in streams causes major degradation of aquatic life beneficial uses by eliminating pools and by clogging gravel where fish eggs, larvae, and benthic invertebrates that serve as a food source typically live (CCAMP, 2010b; Waters, 1995). Effective erosion control and sediment control management practices include but are not limited to cover crops, filter strips, and furrow alignment to reduce runoff quantity and velocity, hold fine particles in place, and increase filtration to minimize the impacts to water quality (USEPA, 1991).

91. Orchards, vineyards, and row crops have the greatest erosion rates in irrigated agriculture, especially those that are managed with bare soil between tree or vine rows (ANR, 2006). A vegetative filter strip offers one way to control erosion rates and discharge of sediment rather than letting it be carried off site in drainage water. A vegetative filter strip is an area of vegetation that is planted intentionally to help remove sediment and other pollutants from runoff water (Dillaha et al., 1989) Vegetative filter strips intercept surface water runoff and trap as much as 75 to 100 percent of the water's sediment. They capture nutrients in runoff, both through plant uptake through adsorption to soil particles. They promote degradation and transformation of pollutants into less-toxic forms, and they remove over 60% of certain pathogens from the runoff. (ANR, 2006).

Impacts to the Marine Environment

92. The marine environment in the Central Coast Region is impacted by runoff from irrigated agriculture and other sources. Legacy pesticides have impacted the marine environment and are still found in sediment and tissue at levels of concern today (CCLEAN, 2007; Miller et al., 2007; Dugan, 2005, BPTCP, 1998). Currently applied pesticides are persistent in the aquatic environment, but initial testing has not found them in offshore areas of Monterey Bay (CCAMP, 2010b).

93. Two Marine Protected Areas (MPAs), Elkhorn Slough and Moro Cojo Slough, are heavily impacted by agricultural chemicals and activities in the vicinity. The Elkhorn Slough and Moro Cojo Slough MPAs are at very high to extremely high risk for additional degradation of beneficial uses. Other MPAs that are relatively near shore in agricultural areas are at medium risk for degradation of beneficial uses; these include the South Santa Ynez River MPA, and the two Monterey Bay MPAs. Other MPAs that are not near agricultural areas are at medium to low risk from agricultural discharges (CCAMP, 2010b).

94. Nitrate loading from the Pajaro and Salinas Rivers to Monterey Bay has been found to be a potential driver of plankton blooms during certain times of year. Research shows a clear onshore to offshore gradient in nitrate load influence from rivers, and also shows overall increasing trends in loading from rivers, whereas nitrate loading from upwelling shows no trends (Lane, 2009; Lane et al., in review). Using infrared remote sensing, Monterey Bay Aquarium Research Institute researchers have documented bloom initiation immediately following “first flush” events just offshore Moss Landing and Pajaro River discharges, that then evolved into very large red tides that killed many sea birds (Ryan, 2009; Jessup et al., 2009). These bloom initiation events were documented in 2007 and 2008.

Impacts to Aquatic Habitat and Riparian and Wetland Areas

95. Riparian and wetland areas play an important role in protecting several of the beneficial uses designated in the Basin Plan. Agricultural activities have degraded, and threaten to degrade, these beneficial uses related to aquatic habitat, which include, but are not limited to:

    a. Ground Water Recharge;
    b. Fresh Water Replenishment;
    c. Warm Fresh Water Habitat;
    d. Cold Fresh Water Habitat;
    e. Inland Saline Water Habitat;
    f. Estuarine Habitat;
    g. Marine Habitat;

h. Wildlife Habitat;
i. Preservation of Biological Habitats of Special Significance;
j. Rare, Threatened or Endangered Species;
k. Migration of Aquatic Organisms;
l. Spawning, Reproduction and/or Early Development;
m. Areas of Special Biological Significance;

96. The Basin Plan contains requirements to protect aquatic habitat, including, but not limited to, Chapter 2, Section II Water Quality Objectives to Protect Beneficial Uses, and Chapter 5, Page V-13, V.G. Erosion and Sedimentation: A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible.

97. Riparian and wetland areas play an important role in achieving several water quality objectives established to protect specific beneficial uses. These include, but are not limited to, those water quality objectives related to natural receiving water temperature, dissolved oxygen, suspended sediment load, settleable material concentrations, chemical constituents, and turbidity.

98. The 2004 Agricultural Order required protection of beneficial uses including aquatic and wildlife habitat. This Order includes that requirement to achieve protection of aquatic life beneficial uses and to address water quality degradation that has occurred, in part, as a result of encroachment by agricultural land uses on riparian and wetland areas.

99. In particular, seasonal and daily water temperatures are strongly influenced by the amount of solar radiation reaching the stream surface, which is influenced by riparian vegetation (Naiman, 1992; Pierce's Disease/Riparian Habitat Workgroup (PDRHW), 2000.). Removal of vegetative canopy along surface waters threatens maintenance of temperature water quality objectives, which in turn negatively affects dissolved oxygen related water quality objectives, which in turn negatively affects the food web (PDRHW, 2000).

100. Riparian and wetland areas function to retain and recycle nutrients (National Research Council (NRC), 2002; Fisher and Acreman, 2004), thereby reducing nutrient loading directly to surface water or groundwater. Riparian and wetland areas trap and filter sediment and other wastes contained in agricultural runoff (NRC, 2002; Flosi et al., 1998; PDRHW, 2000; Palone and Todd,1998), and reduce turbidity (USEPA, 2009). Riparian and wetland areas temper physical hydrologic functions, protecting aquatic habitat by dissipating stream energy and temporarily allowing the storage of floodwaters (Palone and Todd, 1998), and by

maintaining surface water flow during dry periods (California Department of Water Resources, 2003). Riparian and wetland areas regulate water temperature and dissolved oxygen, which must be maintained within healthy ranges to protect aquatic life (PDRHW, 2000). In the absence of human alteration, riparian areas stabilize banks and supply woody debris (NRC 2002), having a positive influence on channel complexity and in-stream habitat features for fish and other aquatic organisms (California Department of Fish and Game 2003).

101. Riparian areas are critical to the quality of in-stream habitat. Riparian vegetation provides woody debris, shade, food, nutrients and habitat important for fish, amphibians and aquatic insects (California Department of Fish and Game 2003). Riparian areas help to sustain broadly based food webs that help support a diverse assemblage of wildlife (NRC, 2002). More than 225 species of birds, mammals, reptiles, and amphibians depend on California's riparian habitats (Riparian Habitat Joint Venture, 2004).

102. Riparian vegetation provides important temperature regulation for instream resources. In shaded corridors of the Central Coast region, temperatures typically stay under 20 degrees Celsius (within optimum temperature ranges for salmonids), but can rapidly increase above 20 degrees Celsius when vegetation is removed. Orcutt Creek in the lower Santa Maria watershed is an example where upstream shaded areas remain cooler than downstream exposed areas, in spite of lower upstream flows (CCAMP, 2010a).

103. Land management and conservation agencies describe three vegetated zones within a riparian buffer that can provide water quality protection (NRCS, 2006; Welsch, 1991, Tjaden and Weber). These zones are described below:
    a. Zone 1 – The goal for this zone is to control temperature and turbidity discharges by establishing a mix of trees and shrubs that provide shade and streambank stability. A mix of native woody species that vary from large tree species as they mature to understory trees and shrubs will provide canopy cover and shading next to the water.
    b. Zone 2 – The goal for this zone is to establish a mix of trees and shrubs that will absorb and treat waterborne nutrients and other pollutants and allow water to infiltrate into the soil.
    c. Zone 3 – The goal for this zone is to act as a transitional zone between cropland and zones 1 and 2, serving to slow flows, disperse flows out into more diffuse, sheet flow, and promote sediment deposition. The use of stiff multi-stemmed grasses and forbs are preferred and will help disperse concentrated flows.

104. CCAMP and CMP bioassessment data show that streams in areas of heavy agricultural use are typically in poor condition with respect to benthic community health and that habitat in these areas is often poorly shaded, lacking woody

vegetation, and heavily dominated by fine sediment. Heavily sedimented stream bottoms can result from the immediate discharge of sediment from nearby fields, the loss of stable, vegetated stream bank habitat, the channelization of streams and consequent loss of floodplain, and from upstream sources.

105. Up to approximately 43 percent of the federally threatened and endangered species rely directly or indirectly on wetlands for their survival (United States Environmental Protection Agency, 2008). Of all the states, California has the greatest number of at-risk animal species (15) and, by far, the greatest number of at-risk plant species (104) occurring within isolated wetlands (Comer et al., 2005).

106. California has lost an estimated 91 percent of its historic wetland acreage, the highest loss rate of any state. Similarly, California has lost between 85 and 98 percent of its historic riparian areas (State Water Resources Control Board, 2008). Landowners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops (Braatne et al., 1996; Riparian Habitat Joint Venture, 2004).

107. The California Wetlands Conservation Policy (Executive Order W-59-93), also known as "the No Net Loss Policy," adopted by Governor Wilson in 1993, established the State's intent to develop and adopt a policy framework and strategy to protect California's unique wetland ecosystems. One of the goals of this policy is to ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.

108. Real and/or perceived incompatible demands between food safety and environmental protection are a major issue in the Central Coast Region. Technical Assistance Providers have reported that growers have removed vegetated management practices intended to protect water quality (in some cases, after receiving substantial public funds to install vegetated management practices).

109. According to a spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches to prevent pollution from pathogens such as the O157:H7 bacteria. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management practices removed (RCDMC, 2007). According to a follow-up spring 2009 survey by RCDMC, growers are being told by their auditors and/or buyers that wetland or riparian plants are a risk to food safety (RCDMC, 2009). To assist in the co-management of water quality protection and food safety, the RCDMC has

developed a handbook of agricultural conservation practices, photos, and descriptions with food safety considerations (RCDMC, 2009).

110. The Food Safety Modernization Act (FSMA) was signed into law on January 4, 2011 giving the U.S Food and Drug Administration (FDA) a mandate to pursue a farm to table system that is based on science and addresses food safety hazards. The law requires FDA to apply sound science to any requirements that might impact wildlife and wildlife habitat on and near farms, and take into consideration conservation and environmental practice standards and policies.

111. Riparian vegetation and vegetated buffer zones are critically important to prevent the transport of sediment and bacteria, which may include the downstream transport of O157:H7 bacteria. Tate et al. (2006) tested vegetated buffers on cattle grazing lands and found that they are a very effective way to reduce inputs of waterborne E. coli into surface waters. Data indicates that the major source of O157:H7 bacteria are cattle, not wildlife (RCDMC, 2006). In many agricultural areas of the Central Coast Region, cattle operations are located upstream of irrigated agricultural fields. Therefore, the removal of riparian and wetland vegetation and their buffer zones increases the transport of pathogens such as O157:H7 and the risk of food contamination. The removal of riparian and wetland vegetation for food safety purposes is not warranted, is not supported by the literature, and may increase the risk of food contamination.

112. Agriculture near surface waterbodies can lead to removal or reduction of riparian vegetation and the impairment of its ecological functions (ANR, 2007). Once riparian vegetation is removed, it no longer serves to shade water, provide food for aquatic organisms, maintain stream banks, provide a source of large woody debris, or slow or filter runoff to streams. The result is degraded water quality and fish habitat (ANR, 2007). For these reasons, maintenance of riparian vegetation is a critical element of any type of land use (ANR, 2007).

113. Buffer strips are areas of vegetation left beside a stream or lake to protect against land use impacts (ANR, 2007). Whether or not harvesting is permitted within the buffer strip, well-designed and managed buffers can contribute significantly to the maintenance of aquatic and riparian habitat and the control of pollution. Riparian buffer strips protect aquatic and riparian plants and animals from upland sources of pollution by trapping or filtering sediments, nutrients, and chemicals from forestry, agricultural and residential activities. (ANR, 2007).

114. Vegetated riparian areas provide greater environmental value than unvegetated floodplains or cropped fields. Riparian forests provide as much as 40 times the water storage of a cropped field and 15 times that of grass turf (Palone and Todd, 1998). Agricultural floodplains are approximately 80 to 150 percent more erodible than riparian forest floodplains (Micheli et al., 2004) and riparian forest floodplains

serve a valuable function by trapping sediment from agricultural fields (National Resource Council, 2002; Flosi and others, 1998; PDRHW 2000; Palone and Todd 1998).

115. Riparian and wetland areas are an effective tool in improving agricultural land management. Wide riparian areas act as buffers to debris that may wash onto fields during floods, thereby offsetting damage to agricultural fields and improving water quality (Flosi et al., 1998; PDRHW, 2000).

116. Exotic plant species exclude native riparian and wetland vegetation by out-competing native species for habitat. Additionally, exotic plants do not support the same diversity of wildlife native to riparian forests, often use large amounts of water, and can exist as monocultural stands of grass. Grass habitat is very different from the complex habitat structure provided by a diversity of riparian trees and shrubs, and results in habitat changes that affect the aquatic based food web (California Department of Fish and Game, 2003).

MANAGEMENT PRACTICE IMPLEMENTATION

117. Commercial agriculture is an intensive use of land. Relatively sophisticated agronomic and engineering approaches are available and necessary to minimize the discharge of waste from irrigated lands, including sediment, nutrients, and pesticides that impact water quality and beneficial uses of waters of the State. Traditionally, conservation practices available to Dischargers were developed for irrigation efficiency or for erosion control, and not necessarily for water quality protection. To achieve water quality protection and improvement, Dischargers are responsible for selecting and effectively implementing management strategies to resolve priority water quality problems associated with the specific operation and receiving water, utilize proper management practice design and maintenance, and implement effectiveness monitoring.

118. The Central Coast Water Board recognizes efforts to maximize water quality improvement using innovative and effective local or regional treatment strategies and it is the Central Coast Water Board's intent to provide flexibility in the implementation of this Order to encourage discharger participation in such efforts. The Central Coast Water Board will evaluate proposed local or regional treatment strategies based upon the anticipated effectiveness, time schedule for implementation, and proposed verification monitoring and reporting to measure progress towards water quality improvement and compliance with this Order.

119. The Central Coast Water Board recognizes efforts to improve recharge conditions and restore groundwater recharge function that have been lost due to urbanization and agricultural development. Managed aquifer recharge (MAR) has been

successfully applied in areas of the Central Coast region, improving both water supply and water quality in the basin (Racz et al., in review). Water applied to percolation basins for MAR projects often have a high quality relative to that in underlying aquifers in many locations, despite exceedances of water quality standards. Recharging this water into the ground is important for improving and maintaining water quality in critical aquifers. In addition, considerable improvement in water quality can be achieved during percolation of surface water because of beneficial microbial and filtering processes that occur (Schmidt et al., in review). The Central Coast Water Board encourages MAR efforts, which will result in improving both water supply and water quality.

120. Dischargers are responsible for implementing management measures to achieve water quality improvement, including practices and projects at the scale of a single farm, or cooperatively among multiple farms in a watershed or sub watershed.

121. 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 in compliance with this Order. Elements of the Farm Plan include irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for implementation of practices and an evaluation of progress in achieving water quality improvement. The development and implementation of Farm Plans was a requirement of the 2004 Agricultural Order. This Order renews the requirement to prepare the Farm Plan, and adds new conditions requiring each Discharger to verify the effective implementation of management practices focused on resolving water quality issues and for a subset of Dischargers considered a higher threat to water quality to conduct individual discharge monitoring to verify the effective implementation of management practices.

122. Dischargers can significantly reduce the potential impact from agricultural discharges by the effective implementation of management practices identified in Farm Plans focused on priority water quality issues related to the specific operation and watershed.

123. Individual on-farm water quality monitoring is critical to adaptively manage and effectively implement practices to protect water quality. The data and reporting will inform the Discharger, the Water Board, and the public regarding compliance with this Order, and increases the potential success in adapting management practices to address priority water quality issues. Dischargers participating in on-farm water quality monitoring have reported, in some cases, significant reduction or elimination of their discharge of waste through effective and adaptive management practice implementation.

124. Agricultural discharges, especially surface irrigation runoff, have the potential to transport sediments and associated waste constituents that exceed water quality standards. Minimizing irrigation runoff is an effective way to minimize and/or eliminate agricultural discharges of waste to waters of the State.

125. Agricultural water quality research identifies the importance of minimizing the amount of water runoff coming from farms. Irrigation runoff occurs when the application rate of the irrigation system exceeds the infiltration rate of the soil due to numerous factors, including poor irrigation efficiency. The percent of applied water lost to runoff may start off low, and increase towards the end of longer irrigations, or with frequent irrigation where soil is saturated. Fields with soils susceptible to low infiltration rates may lose 5 percent to 30 percent or more of their applied water to runoff.

126. Applying fertilizer, soil amendments, or agricultural products directly through an irrigation system (fertigation) increases nitrate levels in irrigation water. Runoff from fertigations is likely to be extremely high in nitrate concentrations. Agricultural research conducted in the Pajaro Valley and Salinas Valley watersheds has identified nitrate values in agricultural tailwater and drainage ditches exceeding 100 mg/L nitrate as N in some cases (more than ten times the drinking water standard, and likely more than 100 times the level necessary to protect aquatic life) (Anderson, 2003).

127. Agricultural studies document the common over-application of fertilizers, and fertilizer and animal manure are the most dominant and widespread nitrate sources to groundwater (Harter, 2009; Kitchen, 2008; Lawrence Livermore National Lab GAMA Studies Llagas subbasin, 2005). Effective irrigation and nutrient management practices to reduce the concentration of nutrients in irrigation runoff, deep percolation, and stormwater include but are not limited to, irrigation efficiency to reduce runoff and deep percolation, nutrient budgeting to optimize fertilizer application and eliminate excessive nutrient applications, and techniques to trap nutrients between crop growing seasons and during intense periods of rainfall.

128. Agricultural studies and practices demonstrate that minimizing the production of polluted tailwater through irrigation efficiency and nutrient management practices and keeping runoff from leaving the farm is cost effective (Meals, 1994). Improving irrigation water application according to real time soil moisture data has resulted in some of the lowest concentrations of nutrients in percolating waters, confirming that irrigation efficiency is a key factor in reducing leaching of nutrients (United Water Conservation District, 2007).

129. Nitrate in water leaving subsurface drain (“tile”) systems often exceeds drinking water standards and contributes to low-oxygen in marine environments. Denitrification, including the use of wood-chip bioreactor treatment systems, is an

effective method of removing nitrate from soil water before it enters subsurface drains (Jaynes, et al., 2006; Starrett, 2009).

130. Agricultural land uses can disrupt the natural vegetation-soil cycles and biota diversity, keeping the soil surface unprotected and vulnerable to erosive forces (wind and rain), which increases the amount of sediments dispersed and transported from agricultural lands into surface water (USEPA, 2003).

131. Agricultural mechanization and tillage of soil and land for bed preparation, crop maintenance and pest control, can destroy the soil structure and degrade the land, which increases the amount of sediment and associated waste constituents discharged into surface water (Fawcett, 2005).

132. Managing uncropped areas, minimizing and protecting bare soil and heavy use areas and unpaved road from concentrated flows of water, and implementing practices to detain or filter sediment and runoff before it leaves agricultural operations are effective ways to reduce soil erosion and capture sediment before it enters waterways, where it can cause water quality impairments downstream (ANR Publications 8124 and 8071).

133. Stormwater runoff from irrigated lands often results in significant erosion and the discharge of sediment, nutrients, and pesticides. Effective erosion control and sediment control management practices include but are not limited to cover crops, filter strips, and furrow alignment to reduce runoff quantity and velocity, hold fine particles in place, and increase filtration to minimize the impacts to water quality (USEPA, 1991). Crops grown using impervious plastic can be particularly problematic as they often result in significantly increased irrigation runoff volumes and velocities in agricultural furrows and ditches that may drain to waters of the State.

134. Education and technical assistance is an important tool in advancing the implementation of new effective management practices that protect and enhance water quality.

135. There are many technical resources available to the agricultural industry to assist farmers in pollution prevention and addressing water quality problems associated with irrigated agriculture. The United States Department of Agriculture - Natural Resources Conservation Service (NRCS), Resource Conservation Districts (RCD), and University of California Cooperative Extension (UCCE) provide non-regulatory technical services and research to promote conservation and address natural resource problems. There are also many non-profit agricultural and commodity-specific organizations and initiatives that promote sustainable agriculture, and provide education and technical support. Private consulting companies and individual professionals working in the field of environmental and engineering

sciences, investigations, site remediation and corrective actions, treatment system design, sampling, and reporting are available to assist the agricultural industry in water quality improvement and achieving compliance with this Order.

136. The State and Regional Water Boards have made over $600 Million of public grant funds available to address agricultural water quality issues from approximately 2000 – 2011. These funds came from Bond Propositions 13, 40, 50, and 84, and addressed a myriad of water quality projects, watershed protection, and nonpoint source pollution control throughout California. In addition, the State Water Board, in coordination with USEPA, also allocates approximately $4.5 Million per year in 319(h) program funding to address nonpoint source pollution. The amount of Water Board public grant funds recently awarded in the Central Coast Region for agricultural related projects is more than $55 Million.

AGRICULTURAL REGULATORY PROGRAM IMPLEMENTATION

137. The Central Coast Water Board is maximizing regulatory effectiveness by identifying and prioritizing actions that address the most significant agricultural water quality problems in the Central Coast Region, including nitrate in groundwater from discharge related to excess fertilizer application, the discharge of waste in agricultural tailwater, surface water toxicity resulting from pesticides, surface water nutrients from fertilizer, increasing salinity, sediment discharge, and degradation of aquatic habitat.

138. The Central Coast Water Board is addressing priority agricultural water quality issues, on a watershed basis in coordination with other Water Board programs and efforts, focused in the most intensive agricultural areas of the region including the Salinas, Pajaro, and Santa Maria watersheds. In addition, Central Coast Water Board staff will assess and track progress towards specific measures of water quality improvement, and adapt to the feedback the tracking provides.

139. The Central Coast Water Board will evaluate compliance of individual Dischargers with the terms and conditions of this Order based on enrollment information, threat of water quality impairment, content of technical reports (including Annual Compliance Document, Farm Plan, Irrigation and Nutrient Management Plan, and Water Quality Buffer Plan), prioritized inspections, and water quality monitoring data. Failure to comply with enrollment requirements may result in enforcement action for individual landowners and operators. In addition to the determination of noncompliance and water quality impairment, the Central Coast Water Board will enforce the conditions of this Order in a manner similar to enforcement of WDRs and consistent with the State Water Board's Enforcement Policy, focusing on the highest priority water quality issues and most severely impaired waters.

140. The Central Coast Water Board will consider the history of compliance and violations and progress made toward compliance and water quality improvement demonstrated by individual Dischargers when determining potential enforcement actions. In some cases, the Central Coast Water Board may terminate coverage under this Order and require the Discharger to submit a ROWD and comply with the Water Code pursuant to individual WDRs.

PART B. RELEVANT PLANS, POLICIES, AND REGULATIONS

Water Quality Control Plan

The *Water Quality Control Plan for the Central Coast Region* (Basin Plan) was adopted by the Central Coast Water Board in 1975 and is periodically revised. Tables 1A and 1B include a summary of Narrative and Numeric Water Quality Objectives. The Basin Plan is available by contacting the Central Coast Water Board at (805) 549-3147 or by visiting the Central Coast Water Board's website at: http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/

Other Relevant Plans, Policies, and Regulations

State Water Resources Control Board, Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California,* October 1968.

State Water Resources Control Board, *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California*, June 1972.

State Water Resources Control Board, Resolution No. 74-43, *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*, May 1974.

State Water Resources Control Board, Resolution No. 88-63, *Sources of Drinking Water Policy*, May 1988.

State Water Resources Control Board, *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program,* May 2004.

State Water Resources Control Board, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)*, February 2005

State Water Resources Control Board, *Water Quality Control Plan for Ocean Waters of California (CA Ocean Plan),* September 2009.

State Water Resources Control Board, *Water Quality Enforcement Policy,* May 20, 2010.

US EPA, *National Toxics Rule*, 40 CFR 131.36, 57 FR 60848, December 1992.

US EPA, *California Toxics Rule*, 40 CFR 131.38, 65 FR 31682, May 2000.

Table 1A. Narrative and Numeric Water Quality Objectives for Surface Water.

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
TOXICITY	
Toxicity *(BPGO, III-4)* *Narrative Objective:* All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. *Indicators of Narrative Objective:* Chemical concentrations in excess of toxic levels for aquatic life including but not limited to the following: Chlorpyrifos 0.025 ug/L Diazinon 0.14 ug/L *(Source: Sipmann and Finlayson 2000)*	All Surface Waters
TOXICANTS	
Nutrients	
Ammonia, Total (N) ***(****BPSO, Table 3.3)* >30 mg/L NH4-N	AGR
Ammonia, **Un-ionized** *(BPGO, III-4)* 0.025 mg/L NH3 as N	All Surface Waters
Nitrate ***(****a. BPSO, Table 3-2* *b. BPSO, Table 3-3)* a. 10 mg/L NO3-N b. >30 mg/L NO3-N	a. MUN b. AGR
Organics	
Chemical Constituents *(BPSO, III-5 and* *Table 3-2)* Waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Article 4, Chapter 15,	MUN

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Section 64435, Tables 2 and 3 as listed in Table 3-2.	
Chemical Constituents *(BPSO, III-5 and Table 3-3)* Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-4	AGR
Chemical Constituents *(BPSO, III-10, Table 3-5, Table 3-6)* Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5 or Table 3-6.	COLD, WARM, MAR
Oil and Grease *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	All Surface Waters
Organic Chemicals *(BPSO, III-5 and Table 3-1)* All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.	MUN
Other Organics *(BPGO, III-3)* **Phenol** *(BPSO, III-5)* Waters shall not contain organic substances in concentrations greater than the following:	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Methylene Blue Activated Substances < 0.2 mg/L Phenols < 0.1 mg/L Phenol (MUN) ≤ 1.0 µg/L PCBs < 0.3 µg/L Phthalate Esters < 0.002 µg/L	
Metals	
Chromium *(BOSP, III-12)* ≤ 0.01 mg/L	SHELL
Cadmium *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Chromium *(BPGO, III-11)* ≤ 0.05 mg/L	COLD, WARM
Copper *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.01 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Lead *(BPGO, III-11)* ≤ 0.03 mg/L	COLD, WARM
Mercury *(BPGO, III-11)* ≤ 0.0002 mg/L	COLD, WARM
Nickel *(BPGO, III-11)* ≤ 0.4 mg/L in hard water or	COLD, WARM

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
≤.0.1 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	
Zinc *(BPGO, III-11)* ≤ 0.2 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
CONVENTIONALS	
Biostimulatory Substances *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. *Indicators of Narrative Objective:* Indicators of biostimulation include chlorophyll-a, dissolved oxygen, phosphorous, and nitrate. Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation. *(Source: Central Coast Water Board. April 2009. Central Coast Ambient Monitoring Program Technical Paper: Interpreting Narrative Objectives for Biostimulatory Substances Using the Technical Approach for Developing California Nutrient Numeric Endpoints)*	All Surface Waters
Boron *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 0.2 – 0.5 mg/L.	Specific Surface Waters
Chloride *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 150-1400 mg/L.	Specific Surface Waters
Color *(BPGO, III-3)* Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
greater than 15 units or 10 percent above natural background color, whichever is greater.	
Conductivity *(BPSO, III-8, Table 3-3)* >3.0 mmho/cm	AGR
Dissolved Oxygen (DO) ***(****BPGO, III-2)* Mean annual DO $\geq$ 7.0 mg/L Minimum DO $\geq$ 5.0 mg/L	All Ocean Waters
Dissolved Oxygen *(BPGO, III-4)* For waters not mentioned by a specific beneficial use: DO $\geq$ 5.0 mg/L DO Median values $\geq$ 85 percent saturation	All Surface Waters
Dissolved Oxygen *(BPSO, III-10)* DO $\geq$ 7.0 mg/L	COLD, SPWN
Dissolved Oxygen *(BPSO, III-10)* DO $\geq$ 5.0 mg/L	WARM
Floating Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters
pH ***(****BPSO, III-10)* The pH value shall not be depressed below 7.0 nor above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.	COLD, WARM,

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
pH ***(****BPSO, III-10)* The pH value shall not be depressed below 7.0 or raised above 8.5[1]. Changes in normal ambient pH levels shall not exceed 0.2 units.	MAR
pH ***(****BPSO, III-5)* The pH value shall not be depressed below 6.5 nor above 8.3.	MUN, REC-1, REC-2, AGR
Settleable Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.	All Surface Waters
Sediment *(BPGO, III-3)* *Narrative Criteria:* The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	All Surface Waters
Sodium *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 20-250 mg/L.	
Sulfate *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-700 mg/L.	
Suspended Material *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Taste and Odor *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.	All Surface Waters
Temperature ***(****BPGO, III-3)* *Narrative Criteria:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.	All Surface Waters
Temperature *(BPGO, III-4)* *Narrative Objective:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. *a) Indicators of Narrative Objective for COLD Habitat:* **Coho** December - April 48-54 ºF 7-DAM[2] 56-58 ºF 1-DAM May – November 57-63 ºF 7-DAM 68-70 ºF 1-DAM **Steelhead** December - April 55-57 ºF 7-DAM 56-58 ºF 1-DAM May – November 56-63 ºF 7-DAM 70-73 ºF 1-DAM *(Source: Hicks 2000)* *b) Indicators of Narrative Objective for WARM Habitat:* **<u>Stickleback</u>**	All Surface Waters a) COLD b) WARM

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Upper optimal limit = 75 ºF (This temperature is also the low end of the upper lethal limit for steelhead) *(Source: Moyle 1976)* Note: 7-DAM refers to the rolling arithmetic average of seven consecutive daily maximum temperatures. 1-DAM refers to the highest daily maximum temperature.	
Temperature *(BPSO, III-10)* At no time or place shall the temperature be increased by more than 5^{o}F above natural receiving water temperature.	COLD, WARM
Total Dissolved Solids (TDS) *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-250 mg/L.	
Turbidity *(BPGO, III-3)* *Narrative Objective:* Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. *Indicators of Narrative Objective:* Turbidity greater than 25 NTU's causes reduction in juvenile salmonid growth due to interference with their ability to find food. *(Source: Central Coast Water Board. April 2009. Clean Water Act Sections 305(b) and 303(d) Integrated Report for the Central Coast Region; Sigler et al. 1984. Effects of chronic turbidity on density and growth of steelheads and coho salmon. Transactions of the American Fisheries Society 113:142-150)*	All Surface Waters
PATHOGEN INDICATORS	
Fecal Coliform *(BOSP,III-5)* Log mean 200 MPN/100mL. Max 400 MPN/100mL.	REC-1
Fecal Coliform *(BOSP,III-10)*	REC-2

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Log mean 2000 MPN/100mL. Max 4000 MPN/100mL.	
E. coli *(USEPA)* Max 235 MPN/100 mL	REC-1
Total Coliform *(BOSP,III-12)* Median $\leq$ 70/100 MPN/100mL Max 230 MPN/100 mL	SHELL

Table 1B. Narrative and Numeric Water Quality Objectives for Groundwater.

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
TOXICANTS	
Chemical Constituents *(BPSO, III-14)* Groundwaters shall not contain concentrations of chemical constituents in excess of federal or state drinking water standards.	MUN
Chemical Constituents *(BPSO, III-14 and Tables 3-3 and 3-4)* Groundwaters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4.	AGR

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Total Nitrogen *(BPSO, III-15 and Table 3-8)* Groundwater Basin Objectives for Median values range from 1-10 mg/L as N.	Specific Groundwater Basins
CONVENTIONALS	
Total Dissolved Solids (TDS) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 100-1500 mg/L TDS.	Specific Groundwater Basins
Chloride (Cl) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 20-430 mg/L Cl.	Specific Groundwater Basins
Sulfate (SO_4) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-1025 mg/L SO_4.	Specific Groundwater Basins
Boron (B) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 0.1-2.8 mg/L B.	Specific Groundwater Basins
Sodium (Na) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-730 mg/L.	Specific Groundwater Basins

Acronyms:
BP = Basin Plan or Water Quality Control Plan for the Central Coast Region
BPGO = Basin Plan General Objective
BPSO = Basin Plan Specific Objective related to a designated beneficial use
TMDL = Specific Objective related to an adopted Total Maximum Daily Load
WDR = Waste Discharge Requirements
SB = State Board established guideline
USEPA = US Environmental Protection Agency
CCAMP = Central Coast Ambient Monitoring Program

SWAMP = Surface Water Ambient Monitoring Program
MCL = Maximum Contaminant Level, California drinking water standards set forth in California Code of Regulations, Title 22.
NTU = Nephelometric Turbidity Unit
mg/L = milligram/Liter
MPN = Most Probable Number

PART C. DEFINITIONS

The following definitions apply to Order No. R3-2011-0006 and MRP Order No. R3-2011-0006-01, MRP Order No. R3-2011-0006-02, and MRP Order No. R3-2011-0006-03 as related to discharges of waste from irrigated lands. The terms are arranged in alphabetical order. All other terms not explicitly defined for the purposes of this Order and Monitoring and Reporting Program shall have the same definitions as prescribed by California Water Code Division 7 or are explained within the Order or the MRP documents.

1. Anti-degradation. The State Water Board established a policy to maintain high quality waters of the State - Resolution 68-16 "*Statement of Policy with Respect to Maintaining High Quality Waters in California*." Resolution 68-16 requires existing high quality water to be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of water, and will not result in water quality less than that prescribed in the policies. Regional Water Boards are required to ensure compliance with Resolution 68-16. The Central Coast Water Board must require discharges to be subject to *best practicable treatment or control* of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with maximum benefit to the people of the State. Resolution 68-16 has been approved by the USEPA to be consistent with the federal anti-degradation policy.

2. Aquatic Habitat. The physical, chemical, and biological components and functions of streams and lakes, including riparian areas and wetlands and their buffer zones.

3. Aquifer. A geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs. (see also uppermost aquifer).

4. Back flow Prevention. Back flow prevention devices are installed at the well or pump to prevent contamination of groundwater or surface water when fertilizers, pesticides, fumigants, or other chemicals are applied through an irrigation system. Back flow prevention devices used to comply with this Order must be those approved by USEPA, DPR, CDPH, or the local public health or water agency.

5. Basin Plan. The Basin Plan is the Central Coast's Region Water Quality Control Plan. The Basin Plan describes how the quality of the surface and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan includes beneficial uses, water quality objectives, and a program of implementation.

6. Beneficial Uses. The Basin Plan establishes the beneficial uses to be protected in the Central Coast Region. Beneficial uses for surface water and groundwater are divided into twenty-four standard categories identified below. The following beneficial uses have been identified in waterbodies within the Region:

- agricultural supply (AGR)
- aquaculture (AQUA)
- areas of special biological significance (ASBS)
- cold freshwater habitat (COLD)
- commercial and sportfishing (COMM)
- estuarine habitat (EST)
- freshwater replenishment (FRESH)
- groundwater recharge (GWR)
- hydropower generation (POW)
- industrial process supply (PRO)
- industrial service supply (IND)
- inland saline water habitat (SAL)
- marine habitat (MAR)
- municipal and domestic supply (MUN)
- migration of aquatic organisms (MIGR)
- navigation (NAV)
- non-contact recreation (REC2)
- preservation of biological habitats of special significance (BIOL)
- rare, threatened or endangered species (RARE)
- shellfish harvesting (SHELL
- spawning, reproduction, and development (SPWN)
- warm freshwater habitat (WARM)
- water contact recreation (REC1)
- wildlife habitat (WILD)

7. Chemigation. The application of pesticides, fertilizers, fumigants or other chemicals through an irrigation system.

8. Commercial. Irrigated lands producing commercial crops are those operations that have one or more of the following characteristics:

   a. The landowner or operator holds a current Operator Identification Number/Permit Number for pesticide use reporting;
   b. The crop is sold, including but not limited to (1) an industry cooperative, (2) harvest crew/company, or (3) a direct marketing location, such as Certified Farmers Markets;.
   c. The federal Department of Treasury Internal Revenue Service form 1040 Schedule F Profit or Loss from Farming is used to file federal taxes.

9. Concentration. The relative amount of a substance mixed with another substance. An example is 5 parts per million (ppm) of nitrogen in water or 5 mg/L.

10. Crop Types with High Potential to Discharge Nitrogen to Groundwater. Based on the Nitrate Hazard Index developed by the University of California Center for Water Resources (WRC), the following crop types present the greatest risk for nitrogen loading to groundwater: beet, broccoli, cabbage, cauliflower, celery, Chinese

cabbage (napa),collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

11. Discharge. A release of a waste to waters of the State, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides.

12. Discharger. The owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Responsible Party.

13. Discharges of Waste from Irrigated Lands. Surface water and groundwater discharges, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills containing waste.

14. Ephemeral Stream. A channel that holds water during and immediately after rain events.

15. Erosion. The wearing away of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

16. Erosion and Sediment Control Practices. Practices used to prevent and reduce the amount of soil and sediment entering surface water in order to protect or improve water quality.

17. Environmental Justice. Providing equal and fair access to a healthy environment for communities of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies; and proactive efforts to take into account existing environmental injustices and to protect from new or additional environmental hazards and inequitable environmental burdens;

18. Exceedance. A reading using a field instrument or a detection by a California State-certified analytical laboratory where the detected result is above an applicable water quality standard for the parameter or constituent. For toxicity

tests, an exceedance is a result that is statistically lower than the control sample test result.

19. Farm. For the purposes of this Order, a tract of land or operation where commercial crops are produced made up of a parcel(s) that have a similar operator or landowner(s).

20. Farm Water Quality Management Plan (Farm Plan). The Farm Plan is a document that contains, at a minimum, identification of management practices that are being or will be implemented to protect and improve water quality by addressing irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for the effective implementation of management practices and verification monitoring to determine compliance with the requirements of this Order (schedules, milestones, effluent limits, etc.). Consistent with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands adopted by the Board in July 2004 (Order No. R3-2004-0117), this Order requires Dischargers to develop and implement a Farm Plan focused on the priority water quality issues associated with a specific operation and the priority water quality issues associated with a specific watershed or subwatershed.

21. Fertigation. The application of fertilizers through an irrigation system.

22. Freshwater Habitat. Uses of water that support cold or warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

23. Groundwater. The supply of water found beneath the earth's surface, usually in aquifers, which supply wells and springs.

24. Groundwater Protection Practices. Management practices designed to reduce or eliminate transport of nitrogen, pesticides, and other waste constituents into groundwater.

25. Integrated Pest Management Program (IPM). A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as encouraging biological control, use of resistant varieties, or adoption of alternative cultivating, pruning, or fertilizing practices or modification of habitat to make it incompatible with pest development. Pesticides are used only when careful field monitoring indicates they are needed according to pre-established guidelines or treatment thresholds.

26. Intermittent Stream. A stream that holds water during wet portions of the year.

27. Irrigated Lands. For the purpose of this Order, irrigated lands include lands where water is applied for the purpose of producing commercial crops and include, but are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors, that do not have point-source type discharges, and are not currently operating under individual Waste Discharge Requirements (WDRs). Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Order.

28. Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

29. Irrigation Management Practices. Management practices designed to improve irrigation efficiency and reduce the amount of irrigation return flow or tailwater, and associated degradation or pollution of surface and groundwater caused by discharges of waste associated with irrigated lands.

30. Irrigation Runoff or Return Flow. Surface and subsurface water that leaves the field following application of irrigation water. See also, Tailwater.

31. Irrigation System Distribution Uniformity. Irrigation System Distribution Uniformity is a measure of how uniformly irrigation water is applied to the cropping area, expressed as a percentage. A nonuniform distribution can deprive portions of the crop of sufficient irrigation water, and can result in the excessive irrigation leading to water-logging, plant injury, salinization, irrigation runoff and transport of chemicals to surface water and groundwater.

32. Landowner. An individual or entity who has legal ownership of a parcel(s) of land. For the purposes of this Order, the landowner is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the property.

33. Load. The concentration or mass of a substance discharged over a given amount of time, for example 10 mg/L/day or 5 Kg/day, respectively.

34. Monitoring. Sampling and analysis of receiving water quality conditions, discharge water quality, aquatic habitat conditions, effectiveness of management practices, and other factors that may affect water quality conditions to determine compliance with this Order or other regulatory requirements. Monitoring includes but is not limited to: surface water or groundwater sampling, on-farm water quality monitoring undertaken in connection with agricultural activities, monitoring to identify short and long-term trends in in-stream water quality or discharges from sites, inspections of operations, management practice implementation and effectiveness monitoring, maintenance of on-site records and management practice reporting.

35. Nitrate Hazard Index. In 1995, the University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index) (Wu, 2005). The purpose of the Nitrate Hazard Index is to identify agricultural fields with the highest vulnerability for nitrate pollution to groundwater, based on soil, crop, and irrigation practices. The hazard index number can range from 1 through 80 with the hazard increasing with increasing hazard index number. The WRC states that an index number greater than 20 indicates greater risk for nitrate pollution to groundwater and should receive careful attention. http://www.lib.berkeley.edu/WRCA/WRC/wqp_hazard.html

36. Nitrate Loading Risk Factor. 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, and c) Irrigation Water Nitrate Concentration.

37. Non-point Source Pollution (NPS). Diffuse pollution sources that are generally not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common non-point sources are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

38. Non-Point Source Management Measures. To combat NPS pollution, the State Water Board NPS Program adopted management measures as goals for the reduction of polluted runoff generated from five major categories, including agriculture. Management measures address the following components for agriculture: Erosion and sediment control; facility wastewater and runoff from confined animal facilities; nutrient management; pesticide management; irrigation water management; grazing management, and groundwater protection.

39. Non-Point Source Management Practices. Methods or practices selected by entities managing land and water to achieve the most effective, practical means of preventing or reducing pollution from diffuse sources, such as wastes carried off the landscape via urban runoff, excessive hill, slope or streambed and bank erosion, etc. Management Practices include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Management Practices can be applied before, during, and after pollution-causing activities to prevent, reduce, or eliminate the introduction of wastes into receiving waters.

40. Nutrient. Any substance assimilated by living things that promotes growth.

41. Nutrient Management Practices. Management practices designed to reduce the nutrient loss from agricultural lands, which occur through edge-of-field runoff or leaching from the root zone.

42. Operator. Person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, a farm/ranch manager, lessee or sub-lessee. The operator is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the operation.

43. Operation. A distinct farming business, organized as a sole proprietorship, partnership, corporation, and/or cooperative.

44. Operational Spill. Irrigation water that is diverted from a source such as an irrigation well or river, but is discharged without being delivered to or used on an individual field.

45. Perennial Stream. A stream that holds water throughout the year.

46. Pesticide Management Practices. Management practices designed to reduce or eliminate pesticide runoff into surface water and groundwater.

47. Point Source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which wastes are or may be discharged.

48. Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

49. Quality of the Water. The “chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use” as defined in the California Water Code Sec. 13050(g).

50. Receiving Waters. Surface waters or groundwater that receive or have the potential to receive discharges of waste from irrigated lands.

51. Requirements of Applicable Water Quality Control Plans. Water quality objectives, prohibitions, Total Maximum Daily Load (TMDL) Implementation Plans, or other requirements contained in the Basin Plan, as adopted by the Central Coast Water Board and approved according to applicable law.

52. Responsible Party. The owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Discharger.

53. Riparian Area. Vegetation affected by the surface water or groundwater of adjacent perennial or intermittent streams, lakes or other waterbodies. Vegetation species are distinctly different from adjacent areas or are similar to adjacent areas but exhibit more vigorous or robust growth forms indicative of increased soil moisture. Riparian areas may also include floodplains. Floodplains are critical areas for retaining floodwaters, allowing for sediment deposition and the natural movement of riparian areas, as well as space for colonization of new riparian and wetland vegetation necessary due to natural meandering. (Dall et. al. 1997, p.3)

54. Source of Drinking Water. Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan and/or as defined in SWRCB Resolution No. 88-63.

55. Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

56. Subsurface Drainage. Water generated by installing drainage systems to lower the water table below irrigated lands. The drainage can be generated by subsurface drainage systems, deep open drainage ditches or drainage wells.

57. Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions; a major transporter of non-point source wastes in rivers, streams, and lakes.

58. Tailwater. Runoff of irrigation water from the lower end of an irrigated field. See also, Irrigation Runoff or Return Flow.

59. Tile Drains. Subsurface drainage which removes excess water from the soil profile, usually through a network of perforated tile tubes installed 2 to 4 feet below the soil surface. This lowers the water table to the depth of the tile over the course of several days. Drain tiles allow excess water to leave the field. Once the water table has been lowered to the elevation of the tiles, no more water flows through the tiles. The Central Coast Water Board anticipates evaluating longer timeframes necessary to address tile-drain discharges, for inclusion in a subsequent Agricultural Order.

60. Total Maximum Daily Load (TMDL). The condition of an impaired surface waterbody (on the List of Impaired Waterbodies) that limits the amount of pollution that can enter the waterbody without adversely affecting its beneficial uses, usually

expressed as a concentration (e.g., mg/L) or mass (e.g., kg); TMDLs are proportionally allocated among dischargers to the impaired surface waterbody.

61. Total Nitrogen Applied. Total nitrogen applied includes nitrogen in any product, form or concentration) including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water; Reported in units of nitrogen per crop, per acre for each farm/ranch or nitrate loading risk unit;

62. Uppermost Aquifer. The geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer.

63. Waste. "Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal" as defined in the California Water Code Sec. 13050(d). "Waste" includes irrigation return flows and drainage water from agricultural operations containing materials not present prior to use. Waste from irrigated agriculture includes *earthen materials* (such as soil, silt, sand, clay, rock), *inorganic materials* (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and *organic materials* such as pesticides.

64. Water Quality Buffer. A water quality protection zone surrounding perennial or intermittent channels, including adjacent wetlands (as defined by the Clean Water Act), with riparian vegetation and/or riparian functions that support beneficial uses and protect water quality.

65. Water Quality Control. The "regulation of any activity or factor which may affect the quality of the waters of the State and includes the prevention and correction of water pollution and nuisance" as defined in the California Water Code Sec. 13050(i).

66. Water Quality Criteria. Levels of water quality required under Sec. 303(c) of the Clean Water Act that are expected to render a body of water suitable for its designated uses. Criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes. The *California Toxics Rule* adopted by USEPA in April 2000, sets numeric Water Quality Criteria for non-ocean waters of California for a number of pollutants. See also, Water Quality Objectives.

67. Water Quality Objectives. "Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial

uses of water or the prevention of nuisance within a specified area," as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of Section 303 of the Clean Water Act. Specific Water Quality Objectives relevant to this Order are identified in this Appendix A in Tables 1A and 1B.

68. Water Quality Standard. Provisions of State or Federal law that consist of the beneficial designated uses or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an anti-degradation statement. Water quality standards includes water quality objectives in the Central Coast Water Board's Basin Plan, water quality criteria in the California Toxics Rule and National Toxics Rule adopted by USEPA, and/or water quality objectives in other applicable State Water Board plans and policies. For groundwater with the beneficial use of municipal or domestic water supply, the applicable drinking water standards are those established by the United States Environmental Protection Agency (USEPA) or California Department of Public Health (CDPH), whichever is more stringent. Under Sec. 303 of the Clean Water Act, each State is required to adopt water quality standards.

69. Waters of the State. "Any surface water or groundwater, including saline waters, within the boundaries of the State" as defined in the California Water Code Sec. 13050(e), including all waters within the boundaries of the State, whether private or public, in natural or artificial channels, and waters in an irrigation system.

70. Wetland. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 230.3(t)).

71. Wildlife Habitat. Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

EXHIBIT K

March 11, 2011

Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

RE: Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands

Dear Board Members:

The Environmental Defense Center (EDC), Environmental Justice Coalition for Water (EJCW), Monterey Coastkeeper (MCK), Santa Barbara Channelkeeper (SBCK) and San Luis Obispo Coastkeeper (SLOCK) offer these comments for your March 17, 2011, hearing in Watsonville regarding the Central Coast Region Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, Order R3-2011-0006 ("Conditional Waiver" or "Draft Order"). In general, we support a conditional waiver program that contains robust regulatory provisions to ensure that our waters are protected from agricultural discharges and which ensures that agriculture remains sustainable and productive.

Our organizations continue to support adoption of the February 2010 Draft Order, as it is most protective of water quality and adequate to fulfill your statutory duties. Certain aspects of the November 2010 Draft Order are useful; for example, the provisions about discharge from bait traps; the presence of bare soil; reporting of total nitrogen applied, reporting of nitrate balancing; and the achievement nitrogen balance ratios. Draft Order R3-2011-0006 does not compare favorably to the February and November 2010 Drafts; however, our organizations conditionally support adoption of Order R3-2011-0006, contingent on several additions and revisions as described below.

EDC is a non-profit public interest law firm that represents community organizations in environmental matters affecting California's south central coast. EJCW works to empower community members to become strong voices for water justice in their communities, and to build a collective, community-based movement for democratic water management and allocation in California. MCK serves Monterey and Santa Cruz Counties as a program of the Otter Project, and protects the water, watersheds and coastal ocean for the benefit of wildlife and human populations alike. SBCK is a non-profit environmental

organization dedicated to protecting and restoring the Santa Barbara Channel and its watersheds through science-based advocacy, education, field work and enforcement. SLOCK, a program of Environment in the Public Interest, is dedicated to the protection of water quality, watershed and coastal regulations in San Luis Obispo and northern Santa Barbara Counties.

Please note that our prior comments on the February and November 2010 Draft Orders are incorporated herein by reference.

Tiering

The November 2010 Draft Order and Order R3-2011-0006 rely on a tiering structure based upon proximity to polluted waters and loading risk, including crop type and size of operation. "Tier 3" operations represent the highest risk to water quality. We are generally supportive of the tiered structure (with revisions outlined below), but we continue to be concerned by the inadequate scale of Tier 3; it is essential that the acreage regulated in Tier 3 be expansive enough to address the serious surface and groundwater pollution issues on the Central Coast. For example, operators might split acreage between family members to avoid the 1,000-acre trigger for Tier 3 classification.[1]

According to Table 5, on page 23 of the staff report, Tier 3 is expected to include 54 percent of the acreage and 13 percent of the operations enrolled in the Conditional Waiver. This is an appropriate target and is critical to maintain effective regulation. It is essential that a large proportion of the highly impaired waters be included in Tier 3. To ensure that the Conditional Waiver operates effectively, the following language should be added to Order R3-2011-0006:

> *This order shall be scaled to adequately regulate discharges to impaired surface water and to groundwater. After this order has been effective for one year, the tiering structure shall be modified as appropriate to capture at least 10 percent of the total operations or 40 percent of the total acreage enrolled in Tier 3. The tiering structure shall be re-evaluated at least every two years to ensure that at least 10 percent of the total operations or 40 percent of the total acreage enrolled in the conditional waiver are in Tier 3.*

Order R3-2011-0006 adds proximity to public water supply wells contaminated with nitrates (or other nitrogen) into the tiering structure. Operations greater than 1,000 acres and within 1,000 feet of a public water supply well are included in Tier 2. The staff report describes Tier 2 as approximately the same level of regulation as Order R3-2004-0117: "Tier 2 requirements are comparable to the 2004 Conditional Waiver, with a few additional reporting requirements to better indicate effectiveness of management practices and reduction in pollutant loading."

[1] Please note that we do *not* assume that 1,000 acres is an adequate threshold for determining which operations fall into Tier 3.

In addition, as noted by the quotation and by careful reading of Order R3-2011-0006, Tiers 1 and 2 require dischargers to report information but to actually *do* very little. Tier 2 asks that operators sample groundwater, report groundwater sampling results, self calculate and report Nitrate Loading Risk Level, and report total nitrogen applied. It is not until Tier 3 that operators are required to actually achieve Nitrogen Balance Ratios and "achieve annual reduction(s) in nitrogen loading to groundwater." Nitrate pollution of our groundwater is the most serious public health issue controlled by your Board. To delay *doing* anything about it is inappropriate and unacceptable, and it is not protective of public health. Order R3-2011-0006 should be revised to include all operations with high nitrate loading potential and within 1,000 feet of a public water system above nitrate MCL in Tier 3.

Toxicity

First, we are concerned by the requirement that dischargers must "effectively control" waste discharges, as provided throughout Order R3-2011-0006 and especially in Part H, Time Schedule, Sections 84 to 87. "Effectively control" must be defined specifically. In addition, Order R3-2011-0006 should be revised to state:

> *By October 1, 2013, Tier 3 dischargers must effectively <u>eliminate</u> individual waste discharges of pesticides and toxic substances to waters of the State and of the United States.*

Second, we share the concerns expressed by your Board at the February 2011 meeting, that if a discharger switches from using Diazinon or chlorpyrifos to some other pesticide(s) – which may be as or even more toxic than Diazinon or chlorpyrifos – the discharger would no longer be in Tier 3, even though the discharger's operations could pose a comparable risk to water quality. The focus on two specific pesticides is perplexing, considering that staff has already concluded based on studies that additional contaminants such as pyrethroid pesticides, metals, and phenolic compounds are a significant source of toxicity throughout agricultural areas of the Central Coast Region (Attachment A; Sections 78, 79, 80, and 81).

Even though the Department of Pesticide Regulation controls the use of specific pesticides, it is within your Board's regulatory scope to eliminate "toxicity." The February 2010 Draft Order appropriately included a long list of substances known to cause toxicity in sediment or water and did not focus tiering around just two chemicals. Order R3-2011-0006 should be revised to match this section of the February 2010 Draft Order.

Vegetated Buffers

Order R3-2011-0006 does not include prescriptive 30-foot buffers, but rather a reference to the Basin Plan which refers to a 30-foot buffer for construction. Your Board must consider how far we have stepped back from the February 2010 Draft Order, which included 100, 75 and 50-foot buffers (50-foot buffers required for streams that are not

impaired). The November 2010 Draft Order specified a 30-foot buffer for impaired waters and no buffer along unimpaired waters. Now, Order R3-2011-0006 contains nothing more than a vague reference to buffers for impaired waterways. This language is unacceptable, and we suggest the following revision:

> *A vegetated buffer strip of at least 30 feet shall be maintained along all Tier 2 and 3 streams based on the National Hydrography Dataset Plus (NHDPlus,) and a vegetated buffer strip of at least 50 feet shall be maintained along lakes, wetlands, estuaries, and other natural bodies of standing water.*

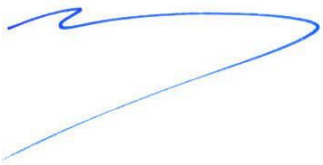
Conclusion

It is clear that some, largely "industrial," agricultural operations cause "widespread and serious impacts on people and aquatic life" on a regular and ongoing basis. Domestic and public water supplies have been significantly contaminated with nitrates and other agricultural pollutants, in many cases at levels that far exceed applicable drinking water standards. Similarly, toxic surface water discharges from irrigation ditches continue to regularly violate water quality standards, despite claims of significant enrollment under the existing Conditional Waiver. And trends in the use of riparian vegetation buffers to protect against sedimentation, nutrient loading, and temperature increases are going in exactly the wrong direction. (Regional Board Staff Preliminary Draft Report, Feb. 1, 2010, p. 16.)

The severity of the problem is demonstrated by the existing Section 303(d) impaired waterbodies list for the Central Coast region. Order R3-2011-0006 represents an opportunity for your Board to take an active leadership role in fixing the problems on our Central Coast and making sure that we all have water for drinking, for agriculture and for habitat, for the long and foreseeable future.

We appreciate this opportunity to comment. If you have any questions about our recommendations, please do not hesitate to contact any of our organizations.

Sincerely,



Nathan G. Alley
Staff Attorney
Environmental Defense Center

Dipti Bhatnagar
Northern California Program Director
Environmental Justice Coalition for Water

Steve Shimek
Executive Director
Monterey Coastkeeper

Kira Redmond
Executive Director
Santa Barbara Channelkeeper

Gordon Hensley
Executive Director
San Luis Obispo Coastkeeper

EXHIBIT L

March 15, 2011

Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

RE: <u>The Conditional Waiver Of Waste Discharge Requirements For Discharges From Irrigated Lands Expires On March 31, 2011</u>

Dear Board Members:

The Environmental Defense Center (EDC), Monterey Coastkeeper (MCK), Santa Barbara Channelkeeper (SBCK) and San Luis Obispo Coastkeeper (SLOCK) offer these comments for your March 17, 2011, hearing in Watsonville.

On July 8, 2010, your Board renewed the existing Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Irrigated Ag Order R3-2010-0040 or "Conditional Waiver"). Order R3-2010-0040 expires on March 31, 2011. Unless your Board renews Order R3-2010-0040 prior to April 1, all dischargers enrolled under the existing Conditional Waiver will be required to submit reports of waste discharge per California Water Code Section 13260. Your Board must then prescribe waste discharge requirements (WDRs) for each individual discharger, per Water Code Section 13263.

Your agenda for March 17 states: "If there is no quorum, the Board may conduct this item as a panel hearing of at least 3 board members. Following the hearing, the panel will make a recommendation for consideration by the full Board at a later date." To reiterate, if that "later date" is after March 31, the provisions of Water Code Sections 13260 and 13263 will be triggered, and the full burden of WDRs will fall on the regulated community.

It has come to our attention that the Executive Officer may intend to avoid this situation by "administratively" renewing the Conditional Waiver, on authority delegated under Water Code Section 13223. As described below, however, your Board *may not*

EDC
906 Garden St.
Santa Barbara, CA 93101

MCK
475 Washington St., Ste A
Monterey, CA 93940

SBCK
714 Bond Ave.
Santa Barbara, CA 93103

SLOCK
1013 Monterey St., Ste 202
San Luis Obispo, CA 93401

delegate authority to the Executive Officer for the purpose of renewing Order R3-2010-0040.[1]

Water Code Section 13223

Water Code Section 13223 states:

> (a) Each regional board may delegate any of its powers and duties vested in it by this division to its executive officer excepting only the following: (1) the promulgation of any regulation; (2) the issuance, modification, or revocation of any water quality control plan, water quality objectives, or waste discharge requirement . . . .

Government Code Section 11342.600 states:

> "Regulation" means every rule, regulation, *order*, or standard of general application or the amendment, supplement, or revision of any rule, regulation, *order*, or standard adopted by any state agency to *implement, interpret, or make specific the law enforced or administered by it*, or to govern its procedure.

(Emphasis added.)

The Conditional Waiver is clearly a "regulation" as contemplated by Water Code Section 13223(a)(1) and as defined by the plain language of Government Code Section 11342.600. To illustrate, Order R3-2010-0040 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.

(Emphasis added.) "The Conditional Waiver provides an alternative *regulatory* option to adoption of WDRs for all Dischargers." (*Id*., emphasis added.) "Waste *specifically regulated* under this Order includes . . . ." (*Id*., emphasis added.)

Even if the clear meaning of "regulation" is ignored, Water Code Section 13223(a)(2) prohibits the Executive Officer from adopting a conditional waiver. If the Executive Officer is specifically precluded from issuing, modifying or revoking a WDR, it makes no sense that he or she would be authorized to *waive* a WDR. For example, under that nonsensical scenario, the Executive Officer would be delegated the authority to supersede the Regional Board; the Regional Board could issue a WDR, and the Executive Officer could then

[1] Please note that although Water Code Section 13269(a)(2) allows the State Board or a Regional Board to "renew" an existing conditional waiver, the order effectuating "renewal" is a new and separate document, as described by its unique order number (for example, Order R3-2004- 0117, Order R3-2009-0050, Order R3-2010-0040, Order R3-2011-0006, etc.) and constitutes a new action by the Board.

immediately waive the WDR. Under that scenario, adoption of a waiver can essentially be considered "revocation" of a WDR, which is prohibited by Section 13223(a)(2).[2]

Inadequate Notice

Even if the Executive Officer does have the delegated authority to renew a conditional waiver, his options are limited on March 17. Water Code Section 13269(f) states:

> Prior to renewing any waiver for a specific type of discharge established under this section, the state board or a regional board shall review the terms of the waiver policy at a public hearing. At the hearing, the state board or a regional board shall determine whether the discharge for which the waiver policy was established should be subject to general or individual waste discharge requirements.

The purpose of your March 17 hearing is to "consider adoption of a *revised* conditional waiver." (March 1, 2011, Public Notice for Agenda Item 14, at p. 1.) Specifically:

> Water Board staff has proposed to renew the current [Conditional Waiver] *with revisions* to control the discharges of wastes, including nitrate, pesticides, and sediment, to surface or ground water and protect beneficial uses of these waters.

(*Id*., emphasis added.) The possibility of the *Executive Officer* wielding delegated authority to adopt a renewed conditional waiver *without revisions* is not agendized and has not been properly noticed. Therefore, it is not an option for your March 17 hearing.

Staff Recommendation

Finally, even if the Executive Officer is delegated the authority to adopt a conditional waiver of WDRs, it would be paradoxical to "administratively" renew the existing Order R3-2010-0040 verbatim. If staff represents the Executive Officer, and staff is recommending adoption of (revised) Order R3-2011-0006, and that is the only option agendized for March 17, then the Executive Officer should simply adopt Order R3-2011-0006.

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[2] Also see the January 3, 2011, letter from Somach Simmons & Dunn, on behalf of the California Strawberry Commission, at page 7:

> Although revisions to conditional waivers adopted pursuant to Water Code section 13269 are not specifically enumerated in Water Code section 13223(a), revisions to waivers are akin to revisions in waste discharge requirements. Specifically, changing the status of a discharger from a lower tier to a higher tier fundamentally alters the burdens and regulatory requirements placed on that discharger-much like a revision to waste discharge requirements. Considering the potential changing regulatory burden and fundamental due process concerns, such an action should not be delegated to the [Executive Officer].

Conclusion

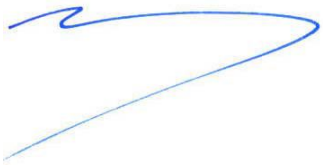
We have urged your Board to adopt a conditional waiver program that contains robust regulatory provisions to ensure that our waters are protected from agricultural discharges while also ensuring that agriculture remains sustainable and productive. Staff's February 2010 Draft Order accomplished those objectives. Staff's March 2011 Draft Order can accomplish those objectives, with certain revisions and enhancements (as detailed in our companion letter dated March 11, 2011).

Renewing Order R3-2010-0040 without revisions will not accomplish those objectives, and it will represent a step backward for this regulatory process. Moreover, renewing Order R3-2010-0040 without revisions is not an option available to your Board or staff on March 17. You may not delegate authority to adopt a conditional waiver to the Executive Officer, and even if it was possible, you have not agendized the verbatim renewal of Order R3-2010-0040 for March 17.

Unless your Board adopts Order R3-2011-0006, or adopts it as modified by our recommendations, the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands will expire on March 31 and WDRs will be required. In that eventuality, our organizations stand ready to assist your Board and staff in preparing and enforcing the WDRs that must be issued after April 1.

If you have any questions about this letter, please do not hesitate to contact us. Thank you for your time.

Sincerely,



Nathan G. Alley
Staff Attorney
Environmental Defense Center

Steve Shimek
Executive Director
Monterey Coastkeeper

Kira Redmond
Executive Director
Santa Barbara Channelkeeper

Gordon Hensley
Executive Director
San Luis Obispo Coastkeeper

EXHIBIT M

Nathan G. Alley, Staff Attorney (State Bar No. 237306)
Linda Krop, Chief Counsel (State Bar No. 118773)
ENVIRONMENTAL DEFENSE CENTER
906 Garden Street
Santa Barbara, California 93101
Telephone: (805) 963-1622
Facsimile: (805) 962-3152
Email: nathanalley@edcnet.org, lkrop@edcnet.org

Attorneys for Petitioners
MONTEREY COASTKEEPER,
SANTA BARBARA CHANNELKEEPER,
SAN LUIS OBISPO COASTKEEPER

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the matter of the Petition of MONTEREY COASTKEEPER, SANTA BARBARA CHANNELKEEPER and SAN LUIS OBISPO COASTKEEPER For Review of Action by the California Regional Water Quality Control Board, Central Coast Region, in adopting the Conditional Waiver of Waste Discharge Requirements for Discharges From Irrigated Lands, Order No. R3-2011-0208	**DECLARATION OF STEVE SHIMEK IN SUPPORT OF REQUEST FOR STAY AND PETITION TO REVIEW CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION EXECUTIVE OFFICER ORDER NO. R3-2011-0017**

DECLARATION OF STEVE SHIMEK

I, Steve Shimek, hereby declare as follows:

1. The following facts are within my personal knowledge, and I am competent to testify, and if called upon to testify, I could and would testify to the truth of these facts.

2. I am Chief Executive of The Otter Project and Program Manager of Monterey Coastkeeper (MCK). Monterey Coastkeeper is a program of The Otter Project. I have been employed at The Otter Project for 13 years. I graduated from UC Santa Cruz in 1975 with a BS in Biology. I founded The Otter Project in 1998 and started the Monterey Coastkeeper program in 2008. A true and correct copy of my resume, which attests to my experience, is attached hereto as Exhibit A.

3. The Otter Project is a California non-profit corporation based in Monterey, California. Monterey Coastkeeper, a program of The Otter Project, works to tackle water pollution problems through policy advocacy and legal tools to ensure that the interests of development, industry and urban activity are kept in line with the environmental needs and wishes of the Monterey Bay and Salinas Valley community it serves. The Otter Project and Monterey Coastkeeper have thousands of members nationally, hundreds of whom live in the Monterey Bay watershed and depend upon clean local streams and shorelines in order to further their recreational, scientific, economic and social interests.

4. Monterey Bay and the Salinas River are home to two national wildlife refuges and a national marine sanctuary. Monterey Bay, the Salinas River National Refuge and nearby Elkhorn Slough are world-reknowned for their wildlife viewing and recreational opportunities. Since its inception, MCK has been active in championing for effective government regulations, good public policy and an active community role in protecting freshwater and marine waters alike. MCK's members are particularly concerned with pollution related to agricultural operations in the Monterey Bay watershed. When not properly managed, agricultural runoff poses significant threats to water quality. Nutrients, pesticides, sediments and other pollutants are among the threats to both freshwater and marine ecosystems.

5. MCK participated actively as a stakeholder in the Agricultural Advisory Panel that informed the current process to update the conditional waiver.

6. MCK and its members are aggrieved by the Executive Officer's decision to renew the inadequate 2004/2011 Order. MCK is concerned that current monitoring and control of agricultural runoff is minimal and inadequate. MCK advocates for more effective monitoring and control requirements to ensure that polluters are held accountable for their activities throughout the agricultural communities. MCK's members live and work in the region and have a beneficial interest in assuring that agriculture is regulated by meaningful and effective requirements to prevent and minimize pollution discharges to the Salinas River and downstream waters. The Salinas River already is impaired by high levels of nutrients and other agriculturally–related pollutants. Any additional or unmonitored pollution releases to that River are detrimental to MCK and its members.

7. There will be substantial harm to petitioners and to the public interest if a stay is not granted. Specifically, if Order No. R3-2011-0017 (renewing Order No. R3-2004-0117) is implemented, water quality in the Central Coast Region will continue to degrade, threatening both drinking water supplies and aquatic public trust resources.

8. Second, there will be no substantial harm to the public interest if a stay is granted. As noted above, the public interest will be furthered by a stay of Order No. R3-2011-0017.

9. Third, as the above petition evidences, there are substantial questions of law regarding the disupted action. As discussed at length above, there is a serious dispute as to whether a regional board may adopt an order that flies in the face of evidence presented by staff. A more immediate question of broader application is whether a regional board's executive officer may renew a conditional waiver of waste discharge requirements. As discussed above, there are serious procedural flaws inherent in that course of action. Members of the public and, specifically, members of the regulated community will be very interested to learn whether an executive officer may "administratively" issue (or impose) waivers of waste discharge requirements.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed October 28, 2011, at Monterey, California.

_____

Steve Shimek

Resume
Steven Joseph Shimek

Education

- 1975. Bachelor of Sciences, University of California at Santa Cruz, Honors.

Employment

- 1998 – Present. Founder and Chief Executive, The Otter Project.

Boards and Working Groups

- 2002-2008. Co-chair, Conservation Working Group, Monterey Bay National Marine Sanctuary
- 2004-2008. Conservation Representative, Sanctuary Advisory Council, Monterey Bay National Marine Sanctuary
- 2004-2006. Sea Otter Recovery Implementation Team, US Fish and Wildlife Service
- 2005-2006. Conservation Representative, Regional Stakeholder Group, Marine Life Protection Act Initiative.
- 2008. Light Brown Apple Moth Environmental Advisory Task Force, California Department of Food and Agriculture.
- 2009-2010. Agricultural Advisory Committee, Regional Water Quality Control Board

Accomplishments

1999

- At the request of the Southern Sea Otter Recovery Team, The Otter Project provided $20k funds and contracted with UC Santa Cruz to conduct a study of sea otter interactions with the live-fish trap fishery along the California coast. The study included a literature search on sea otter trap mortality reports, experimental trials with traps, and field observations of fisheries. TOP then advocated for new regulations resulting in trap modifications that would exclude most sea otters from drowning in traps.
- TOP provided funds to a graduate student at University of Washington to study captive sea otter life expectancy. Results were published in Marine Mammal Science and included in the Southern Sea Otter Recovery Plan.

2000

- TOP developed a necropsy database plan to consolidate 15 years of necropsy data held at two competing public agency labs. The program included a pathologist exchange, post-doc support, and creation of a unified database and resulted in a unified database and standardized protocol for sea otter necropsies.
- TOP provided major support to Monterey Bay National Marine Sanctuary "Team Ocean" in the form of $15,000 worth of kayaks and gear to support an on-the-water education and monitoring program.
- Two years of effort to manage large vessel (oil tankers and container ships) traffic through Monterey Bay National Marine Sanctuary paid off with United Nations approval of vessel traffic routes through MBNMS. North and south vessel traffic lanes are separated and sufficiently offshore to reduce the threat of collision.
- With the urging of The Otter Project, the California Fish and Game Commission banned nearshore gill nets. Gill nets were killing porpoise, seals, otters, and diving birds.

2001

- TOP monitored sea otters in the no otter zone to detect and deter malicious take of otters in areas where certain groups are known to be hostile to otters. The observer effort took place at Cojo Anchorage, immediately south of Point Conception; observers detected no malicious deaths during the observation period. The monitoring project also documented sea otter movements in the Cojo Anchorage area.
- TOP developed and implemented the MBMNS BeachCOMBER program in Santa Barbara County to determine baseline levels of dead birds and marine mammals stranded on beaches against which unusual events can be recognized. Nine months of surveys were completed.

2002

- TOP sponsored and facilitated a 4 day Contaminants Working Group Meeting for stakeholder agencies and researchers to create a collaborative research approach around chemical contaminants and disease in sea otters. The workshop resulted in a research outline and report.

2003

- TOP successfully advocated for the release of Southern Sea Otter Recovery Plan after a 15 year delay. The Otter Project met with US Fish and Wildlife Service administrators, organized state and federal agency support, including the California Congressional delegation and the Marine Mammal Commission, and organized members to encourage the US Fish and Wildlife Service to release the Recovery Plan.
- To fund the Recovery Plan, TOP worked with Congressman Sam Farr to draft the Southern Sea Otter Recovery and Research Act. The Southern Sea Otter Recovery and Research Act was introduced to Congress November 20, 2003.
- The Otter Project worked with the US EPA and other organizations to ban the manufacture of butyltin ship paints. Butyltin is called the "most toxic chemical ever created" by the chemical literature. The manufacture of butyltin paints was banned effective November 30, 2003.

2004

- TOP leveraged a $100,000 grant for the National Wildlife Health Center to study chemical contaminants in sea otters.
- TOP leveraged a $100,000 grant for the Smithsonian Institution to look at nutrition in sea otters.
- TOP provided $6000 in graduate student research support for a summer internship at the National Wildlife Health Center.
- TOP successfully opposed the development of 36 'dormant' offshore oil leases -- some within the sea otter's range—by acting as a plaintiff in a lawsuit lead by the Environmental Defense Center of Santa Barbara.

2005

- TOP advocated for the release of the Draft Supplemental Environmental Impact Statement that would begin the process to end the failed no-otter zone in southern California. The Otter Project organized hundreds of members to appear at public hearings, write letters, and advocate on behalf of the sea otter. The Otter Project

also successfully urged members of Congress and other agencies to encourage the Fish and Wildlife Service to act in favor of sea otter conservation and end the no otter zone.

- TOP undertook a major leadership role in the multi-year campaign to implement the Marine Life Protection Act--a 1999 California state law mandating a network of marine parks, reserves, and protected areas. The Otter Project served on the Regional Stakeholder Group and together with NRDC attended all task force and Science Committee meetings. With the Ocean Conservancy, The Otter Project visited all stakeholders to discuss the myriad of alternative plans. Over a 24 month period over 40 formal meetings and 30 informal meetings were attended.

2006

- Together with the Ocean Conservancy, TOP delivered a strong conservation oriented package of marine protected areas as one of three proposals for marine protected areas along the Central Coast, the first region in which the MLPA was implemented. The Otter Project continued to play an active leadership role in the implementation of the MLPA.
- TOP worked with Monterey region municipalities in the creation of the Monterey Regional Stormwater Management Plan, which requires control of stormwater discharges through municipal policy, public education, and local pollution prevention programs. The resultant management plan was held up by the Central Coast Regional Water Quality Control Board as exemplary for the entire region.

2007

- TOP celebrated the successful creation of a 200 square mile network of marine State Parks, Conservation Areas and no-take Marine Reserves along the Central Coast. The MLPA process throughout California is currently based on the Central Coast experience, and several other states including Oregon, Florida, and Hawaii are studying California's approach.
- TOP worked with Congressman Farr to facilitate the reintroduction of the Sea Otter Recovery and Research Act in Congress.
- TOP Inc. developed a new program, Monterey Coastkeeper. Monterey Coastkeeper, is an affiliate of the International Waterkeeper Alliance and a member of the California Coastkeeper Alliance, and is dedicated to protecting the water, watersheds and coastal ocean in the Monterey Bay Region—a significant portion of the sea otter range.
- Working with the Sierra Club, Surfrider Foundation, and NRDC, TOP successfully convinced local authorities in Morro Bay to upgrade a sewage treatment plant from primary to tertiary treatment (2/11 Note: Morro Bay and Cayucos may be backsliding on their commitment to tertiary treatment).

2008

- Monterey Coastkeeper successfully argued for substantial improvements in the Salinas Stormwater Management Plan to prevent stormwater pollution from entering Monterey Bay. Changes included substantially more rigorous Low-Impact Development (LID) standards to decrease impervious surfacing and subsequent runoff volumes. This effort was our first experience using professional consultants.
- TOP worked with Congressman Farr to update the Sea Otter Recovery and Research Act in a way that reflected the need for support of actionable recovery items in addition to research funding.

- TOP requested a time-line from US Fish and Wildlife Service for a release of the final ruling on the no-otter zone. TOP was promised the document would be out by the end of 2008.

2009

- With TOP's support, the Sea Otter Recovery and Research Act passed the House of Representatives with 31 co-sponsors.
- TOP filed a lawsuit in partnership with The Environmental Defense Center of Santa Barbara against the US Fish and Wildlife Service for failing to release a final ruling on the No Otter Zone.
- Monterey Coastkeeper prevented the bulldozing of close to 100 miles of riparian habitat on the Salinas River. TOP's efforts were informed by Stanford Environmental Law Clinic and three independent consultants.

2010

- Monterey Coastkeeper reviewed and offered comment on five stormwater plans resulting in significant changes protective of water quality.
- Monterey Coastkeeper emerged as a leading force to improve the regulation of agricultural discharges.
- Monterey Coastkeeper filed suit against Monterey County Water Resources Agency for polluting the waters of Monterey Bay, Elkhorn Slough and the Salinas River.
- Monterey Coastkeeper filed an administrative appeal to the State Water Resources Control Board for the Regional Board's permit decision on Gallo Cattle Company.
- Monterey Coastkeeper filed an administrative appeal to the State Water Resources Control Board for the Regional Board's decision to repeatedly extend the Waiver of Waste Discharge Requirements for Irrigated Agriculture.
- The Otter Project completed six months of monitoring of human use of Central Coast marine protected areas. The Otter Project's "MPA Watch" methodology became the 'standard' for human use monitoring of MPAs.
- The Otter Project settled its lawsuit against US Fish and Wildlife Service and the no-otter zone process will now conclude in December 2012.

EXHIBIT N

Appendix F

DRAFT TECHNICAL MEMORANDUM:

Cost Considerations Concerning Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Draft Agricultural Order No. R3-2010-0006)

Prepared by:
Central Coast Water Board Staff

November 2010

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1 INTRODUCTION

On July 9, 2004, the Central Coast Regional Water Quality Control Board (Central Coast Water Board) adopted a *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (2004 Conditional Waiver). Since the adoption of the 2004 Conditional Waiver, the Central Coast Water Board has documented that discharges of waste from irrigated lands, including nutrients, toxic compounds, and other constituents found in fertilizers, pesticides, and sediment, continue to degrade water quality and impair beneficial uses. Activities that have resulted in the discharges of waste that degrade water quality and impair beneficial uses include farm management practices and removal and degradation of riparian and wetland habitat. The 2004 Conditional Waiver expired on July 9, 2009 and has been renewed without revisions until March 2011. The Central Coast Water Board will consider renewing the 2004 Conditional Waiver prior to the expiration of the 2004 Conditional Waiver.

Central Coast Water Board Staff prepared this Technical Memorandum to present cost considerations concerning the proposed renewal of the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Draft Agricultural Order No. R3-2011-0006 (Draft Order)). The goal of this cost analysis is to present the full range of costs associated with the Draft Order and to address concerns raised at Public Workshops held during the spring and summer of 2010.

The Central Coast Water Board is not generally required to consider costs when it adopts a waiver of waste discharge requirements pursuant to Water Code section 13269. Water Code section 13269 requires the Water Board to impose conditions on any waiver and the waiver must be consistent with the applicable water quality control plan (Basin Plan). Water Code section 13141 requires regional water boards to estimate the total costs of any agricultural water quality control program and an identification of potential sources of financing when a Regional Water Board amends a Basin Plan. The Draft Order is not proposed to be included in the Basin Plan; however, this cost analysis provides the information that would be required by Water Code section 13141. The Central Coast Water Board is not required to consider economic or social impacts under the California Environmental Quality Act (CEQA) except where such impacts result in actual physical adverse impacts on the environment caused by the project. This cost analysis provides information that is used in the CEQA document to be considered by the Central Coast Water Board. The Central Coast Water Board is not required to perform a formal cost/benefit analysis when issuing waste discharge requirements or a waiver of waste discharge requirements or when complying with CEQA.

2 COSTS OF IMPLEMENTATION

2.1 Introduction

Growers, farmland owners, and the Central Coast Water Board, as the administering entity, would potentially incur the direct costs of implementing the Draft Order. Water Board staff compiled information available from various sources to characterize the type and approximate scale of these costs.

2.2 Cost Of Compliance to Growers and Farmland Owners

2.2.1 Management Practice Implementation, Monitoring and Reporting

The Draft Order includes specific conditions requiring irrigated agricultural dischargers to implement management practices and conduct monitoring and reporting. The Draft Order does not generally specify the manner of compliance – many different management practices could be implemented to comply with the conditions of the Draft Order to attain water quality standards in the receiving waters. This portion of this Memorandum includes an estimate of costs of implementation of possible management practices that growers could use to comply. These requirements, summarized in Table 1, have the potential to increase costs to growers and agricultural land owners, depending on current level of compliance and other factors.

The Draft Order requires dischargers to comply with conditions for the "tier" that applies to their operation. The tiers are based on criteria that indicate operations that have a low, moderate or high level of waste discharge, or a low, moderate or high threat or contribution to water quality degradation. Tier 1, lowest threat, dischargers have the fewest requirements (including implementation, monitoring and reporting) and Tier 3, highest threat, dischargers have the most requirements. Therefore, Tier 3 dischargers will most likely incur higher costs than Tier 1 or Tier 2 dischargers and a greater increase in costs compared to the cost of complying with the 2004 Order. For all dischargers, most of the costs to comply with the Draft Order will be for implementation of management practices. Remaining additional costs will be for monitoring and reporting.

For example, the proposed draft 2011 Agricultural Order proposes the following implementation and reporting requirements:

- Implement pesticide management practices to reduce toxicity in discharges so receiving waterbodies meet water quality standards;
- Implement nutrient management practices to eliminate or minimize nutrient and salt in discharges to surface water so receiving waterbodies meet water quality standards;
- Implement nutrient management practices to minimize fertilizer and nitrate loading to groundwater to meet nitrate loading targets ;
- Install and properly maintain back flow prevention devices for wells or pumps that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system;
- Implement erosion control and sediment management practices to reduce sediment in discharges so receiving water bodies meet water quality standards;
- Protect and manage existing aquatic habitat to prevent discharge of waste to waters of the State and protect the beneficial uses of these waters;
- Implement stormwater runoff and quality management practices.
- Develop, implement, and annually-update Farm Water Quality Management Plans.
- Submit an Annual Compliance Document (for higher threat dischargers) that includes individual discharge monitoring results, nitrate loading risk evaluation and, if nitrate loading risk is high, irrigation and nutrient management plan, verification of irrigation and nutrient management plan effectiveness.
- Submit a water quality buffer plan (for higher threat dischargers), if operations contain or are adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for temperature or turbidity.

Water Board staff developed this order to address the documented severe and widespread water quality problems in the Central Coast Region, predominately unsafe levels of nitrate in ground water used for drinking water and toxicity impairing communities of aquatic organisms.

This proposed draft 2011 Agricultural Order requires dischargers to implement practices or operational changes to reduce pollutant loading to waters of the State in the Central Coast Region. The proposed draft 2011 Agricultural Order requires more specific and measurable tracking and evaluation of effectiveness of practices and more comprehensive water quality monitoring (e.g., individual discharges and groundwater) than the current 2004 Agricultural Order.

Table 1: Requirements in Draft Order with Potential to Increase Costs to Dischargers

CONDITIONS	Due in:[1]
Pesticide Runoff/Toxicity Elimination	
All dischargers must implement management practices to eliminate or minimize toxicity and pesticide discharges so receiving water bodies meet water quality standards	immediately
Nutrient and Salt Management	
All dischargers must implement nutrient management practices to minimize nutrient and salt discharges so receiving water bodies meet water quality standards	immediately
All dischargers must minimize nutrient discharges from fertilizer and nitrate loading to groundwater so receiving water bodies meet water quality standards and safe drinking water is protected	immediately
Tier 3 dischargers must evaluate the nitrate loading risk factor (as high, medium or low) of their operations, annually	1 Yr
Tier 3 dischargers *with a high nitrate loading risk* must develop and initiate implementation of a certified Irrigation and Nutrient Management Plan (INMP) to meet specified nitrogen balance ratio targets	2 Yrs
Sediment Management / Erosion Control / Stormwater Management	
All dischargers must implement erosion control and sediment management practices to eliminate or minimize the discharge of sediments and turbidity so receiving water bodies meet water quality standards	3 Yrs
All dischargers must protect existing aquatic habitat (including perennial, intermittent, or ephemeral streams, lakes, and riparian and wetland area habitat or other waterbodies) to prevent discharges of waste so receiving water bodies meet water quality standards.	immediately
All dischargers must implement stormwater management practices to minimize stormwater runoff	immediately
Tier 2 and Tier 3 Dischargers must evaluate conditions of riparian and wetland habitat areas *if their operations contain or are adjacent to a waterbody identified on the Clean Water Act Section 303(Dd) List of Impaired Waterbodies as impaired for temperature or turbidity*.	1 Yr
Tier 3 dischargers must develop and initiate implementation of a Water Quality Buffer Plan to prevent waste discharge or water quality degradation, *if their operations contain or are adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for sediment, temperature or turbidity and the discharger's runoff drains to that waterbody.* The plan must include the following or the functional equivalent: minimum of 30 foot buffer; wider buffer if necessary to prevent discharge of waste; three zones with distinct types of vegetation (moving from area closest to waterbody to areas away from waterbody) to jointly provide shade, pollutant treatment through infiltration and reduced velocity of flow to promote sediment deposition; schedule for implementation; and maintenance provisions.	4 Yrs
General Groundwater Protection Requirements	
All dischargers that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system must have functional and properly maintained back flow prevention devices installed at the well or pump to prevent contamination of groundwater or surface water.	3 Yrs
All dischargers must properly destroy all abandoned groundwater wells, exploration holes or test holes, in such a manner that they will not produce water or act as a conduit for mixing or otherwise transfer groundwater or waste constituents between permeable	NA

[1] Where specified time periods/deadlines are included in the proposed Order. NA = no time period specified in order.

zones or aquifers.	
All dischargers who choose to utilize containment structures (such as retention ponds or reservoirs) to achieve treatment or control of the discharge of wastes, must construct and maintain such containment structures to avoid percolation of waste to groundwater that causes or contributes to exceedancess of water quality standards and to avoid surface water overflows that have the potential to impair water quality	NA
MONITORING	
All dischargers must sample private domestic and agricultural supply groundwater wells located at their operation, twice in one year	2Yrs
All dischargers must conduct watershed-scale (receiving water) monitoring as part of cooperative group or individually, monthly for five years	6 Months
Tier 2 and Tier 3 dischargers must photo-document existing conditions of riparian and wetland habitat areas, one time in five years, *if their operation(s) contain or are adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for sediment, temperature or turbidity.*	1 Yr
Tier 3 dischargers must conduct individual discharge monitoring, two to four times per year for five years	6 months
REPORTING	
All dischargers must submit Notice of Intent to Enroll	60 days
All dischargers must submit results of groundwater sampling and related well information	6 Months
Tier 2 and 3 dischargers must submit an Annual Compliance Document that includes status information on implementation of required conditions (e.g. implementation of management practices) and results of any required sampling or monitoring, appropriate for the tier applicable to the discharger's operation.	2 Yrs
Tier 2 and Tier 3 dischargers must submit photo-documentation of conditions of riparian and wetland habitat areas with the Annual Compliance Document, *if their operation(s) contain or are adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for sediment, temperature or turbidity.*	1 yr
Tier 3 dischargers must submit results of individual discharge monitoring	2 Yrs
Tier 3 dischargers must submit results of evaluating nitrate loading risk factor (high, medium, or low)	1 Yr
Tier 3 dischargers *with a high nitrate loading risk* must submit verification of Irrigation and Nutrient Management Plan (INMP) and other related nitrate loading and balance information	2 Yrs
Tier 3 dischargers must submit Water Quality Buffer Plan to prevent waste discharge or water quality degradation, *if their operations contain or are adjacent to a waterbody identified on the Clean Water Act Section 303(d) List of Impaired Waterbodies as impaired for sediment, temperature or turbidity.*	4 Yrs

2.2.2 Costs of Implementing Management Practices

2.2.2.1 Estimated Costs of New Compliance Actions

The scope of this cost analysis is intended to encompass the incremental costs to growers and landowners of new compliance actions beyond those taken to comply with the 2004 Conditional Waiver. Compliance actions for the Draft Order are attached to a schedule (Table 1, above) and Water Board staff recognizes these actions may include the implementation of management practices in addition to those already implemented in response to the 2004 Conditional Waiver. However, Water Board staff possesses limited information to determine the extent of management practice implementation to date. Consequently, Water Board staff can not quantify the incremental costs associated with additional management measures. Water Board staff assumes that many growers will not have to incur entirely new cost of implementing management practices as they will have already implemented some practices for compliance with the 2004 Conditional Waiver. Growers and landowners are likely to implement only some of the actions described below. The higher the assumed rate of management practice implementation over the past nearly seven years, the lower is the incremental increase in cost of the 2011 Draft Order. This analysis provides an estimate of total costs, but the Water Board does not expect that each grower will be subject to all the costs identified since it is up to the grower to choose and implement management practices specific to its situation.

2.2.2.2 Potential Water Quality Management Practices

A broad choice of water quality management practices is available to growers to achieve compliance with the Draft Order. Practices include those designed to manage sediment, nutrients, pesticides, and aquatic habitat. Growers implement many of these management practices for purposes other than water quality protection and Water Board staff makes no estimation of the proportion of practices that growers have implemented, or will implement, exclusively for water quality protection.

Most management practices contribute to meeting multiple management objectives (Table 2). For example, management practices implemented to capture and treat irrigation water runoff (tailwater) before it leaves the farming operation can result in improved irrigation efficiency and reduced transport of multiple constituents off-site, including nutrients, sediment and pesticides. Similarly, management practices that emphasize source control, such as nutrient management planning, reduce the need for more expensive management practices to remove a pollutant from tailwater before it enters receiving waters.

Source control practices also provide cost savings to growers who reduce their use of irrigation water and agricultural chemicals. These cost savings potentially combine with other benefits to reduce the cost of management practice implementation. Reduced

water use, energy use, labor costs for irrigation and fertilization, and chemical use are all examples of benefits with potential to decrease costs to dischargers (Table 2).

2.2.2.3 Potential Cost Factors Considered

Water Board staff evaluated detailed implementation requirements for management practices to identify specific costs of management practice implementation (Table 2). For example, the practice of installing backflow prevention and safety devices has a direct cost associated with purchasing and installing the devices and various related costs to the farming operation, including potential system upgrades to accommodate backflow prevention devices and regular maintenance of backflow prevention devices.

The specific combination of management practice actions undertaken by growers will be unique to the water quality conditions of each operation and will vary widely. To further illustrate the types of costs associated with management practice implementation, Table 3 describes typical activities that incur costs in managing sediment and stormwater, nutrients, pesticides, irrigation, and riparian habitat on farms in the Central Coast Region. Management practices include costs associated with assessment, on-the-ground actions, and technical assistance.

Table 2: Water Quality Management Practices with Potential to Change Costs to Dischargers

WATER QUALITY MANAGEMENT PRACTICES WITH POTENTIAL TO INCREASE COSTS TO DISCHARGERS	DETAILS OF IMPLEMENTATION REQUIREMENTS FOR WATER QUALITY MANAGEMENT PRACTICES	BENEFITS WITH POTENTIAL TO DECREASE COSTS TO DISCHARGERS	*Implementation Achieves Management Objectives for:*			
			Irrigation	*Nutrients*	*Erosion*	*Pesticide*
Eliminate or reduce irrigation runoff through installation and management of a highly efficient irrigation system	Weather station equipment and/or data Expertise/ technical assistance in crop growth, soil science, atmospheric demand, irrigation requirements and economics to prepare an irrigation strategy Labor for installation, operation, and maintenance Direct cost of equipment/system investment	Reduced water use Reduced energy use Reduced agro-chemical use Reduced labor for fertilizer applications Reduced labor through fewer irrigations	✓	✓	✓	✓
Capture and treat irrigation water runoff before it leaves the farming operation	Land out of production to collect tailwater Design and implementation of a tailwater recovery system that collects all discharge Direct cost for recovery/recycle system components Labor for installation, operation, and maintenance Design and implementation of a tailwater treatment system Management time to create and implement a monitoring plan that verifies treatment: collect water samples; evaluate results of samples and recalibrate treatment system	Reduced water use Reduced energy use Reduced need for additional conservation practices Reduced time dealing with clean-ups associated with chemical contamination of other farm water supplies/systems Reduced agro-chemical use	✓	✓	✓	✓
Install backflow prevention and safety devices	Purchase of backflow prevention device Labor for installation and regular maintenance of backflow prevention device Potential system upgrades to accommodate backflow prevention device Expertise/technical assistance	Reduced time and cost dealing with clean-ups associated with chemical contamination of other farm water supplies/systems Reduced agro-chemical use		✓		✓
Conduct analysis of salts to limit unnecessary leaching	Reduced yield from growing current crops with higher salinity in irrigation water Less profit from growing alternative, salt-tolerant crops/varieties Proper training for the collection of samples Labor for the collection of soil samples and water samples Laboratory costs for salinity tests that identify salt problems in soil	Reduced water use and cost by altering irrigation schedule for less frequent heavy watering Reduced energy use to not pump extra water for leaching salts Reduced fertilizer costs by keeping nutrients at the root zone instead	✓	✓		

WATER QUALITY MANAGEMENT PRACTICES WITH POTENTIAL TO INCREASE COSTS TO DISCHARGERS	DETAILS OF IMPLEMENTATION REQUIREMENTS FOR WATER QUALITY MANAGEMENT PRACTICES	BENEFITS WITH POTENTIAL TO DECREASE COSTS TO DISCHARGERS	*Implementation Achieves Management Objectives for:*			
			Irrigation	*Nutrients*	*Erosion*	*Pesticide*
	Expertise/technical assistance to interpret results	of leaching				
Stormwater Management Plan to control, stop, and/or eliminate the release of pollutants from farms to surface waters	Management time to: prepare a stormwater management plan coordinate with other growers and agencies submit plan to Central Coast Water Board oversee implementation of management plan continually review and update management plan Labor associated with implementation Implementation and structural improvements Labor for continued maintenance Expertise/technical assistance to help develop measures, strategies, practices, etc.	Reduced need for additional conservation practices	✓	✓	✓	✓
Dredge, remove, and dispose of sediments from treatment systems every year, before the first rain event	Management time to oversee dredging operation Labor to operate heavy equipment Rental/use of heavy equipment Disposal of contaminated soil Re-vegetating treatment system				✓	✓
Drainage Water Management Program for Dischargers who operate tile drains or other sub-surface drainage systems	Expertise/technical assistance to assist with system design and program Modification of drainage system design and operation Equipment cost for water control structures and/or retrofits Installation of structures Management time to operate structures at appropriate times	Reduced water use Reduced energy use	✓	✓		✓
Develop, implement, and periodically update a Nutrient Management Plan that is approved by a Certified Crop Advisor, a PE, GR, or similarly certified professional	Acquire technical assistance to help measure, calculate, budget, and/or estimate nutrient requirements, uptake, application, including consultant costs to review and approve management plan (CCA, PE, CR, etc.) Train on how to measure, calculate, budget, estimate, and apply nutrients Management time to oversee implementation of management	Reduced energy use Reduced agro-chemical use Reduced labor for fertilizer applications Reduced labor through fewer applications Increased crop yields		✓		

WATER QUALITY MANAGEMENT PRACTICES WITH POTENTIAL TO INCREASE COSTS TO DISCHARGERS	DETAILS OF IMPLEMENTATION REQUIREMENTS FOR WATER QUALITY MANAGEMENT PRACTICES	BENEFITS WITH POTENTIAL TO DECREASE COSTS TO DISCHARGERS	*Implementation Achieves Management Objectives for:*			
			Irrigation	*Nutrients*	*Erosion*	*Pesticide*
	plan; continually review and update management plan Labor for implementation Direct costs associated with implementation Labor associated with continued maintenance					
Estimate loading of nutrients directly below the root zone	Direst cost for measurement equipment Management time and labor for installation and maintenance Management time for regular checks and pumping for sampling Laboratory analysis of samples Management time evaluate sample and make appropriate system changes Hire consultant to collect samples or proper training for employees to collect samples	Reduced water use Reduced energy use Reduced labor for fertilizer applications Reduced agro-chemical use Reduced labor through fewer irrigations	✓	✓		✓
Trap residual fertilizers (and nutrients) in the root zone, between crop rotations	Soil testing and measurements Management time to analyze results and make appropriate fertilizer application changes Installation of leaching reduction (nutrient trapping) control practices	Reduced fertilizer use Reduced energy use Reduced water use and costs for leaching fertilizer to root zone	✓	✓	✓	✓

Table 3: Example Types of Management Practice Implementation Costs

PLANNING AND ASSESSMENT COSTS	ON-THE-GROUND COSTS	COST OF TECH ASSISTANCE
SEDIMENT / EROSION CONTROL / STORMWATER MANAGEMENT		
Prepare Stormwater Management Plan Measure runoff from field Implement smart irrigation scheduling Install and monitor weather station	Construct stormwater storage facility Construct sediment basin Residue and tillage management Re-grade to alter drainage Plant cover crop, filter strips, field borders, grassed waterways, etc. Apply polyacrylamides (PAM)	Consulting fees for technical assistance to implement Stormwater Mgmt. Plan
IRRIGATION MANAGEMENT		
Install and monitor weather station Conduct irrigation system evaluation on a drip, sprinkler, and/or furrow irrigation system Measure soil moisture content Implement smart irrigation scheduling Install flow meter on a pipeline Measure runoff from a field	Convert to drip irrigation from either sprinkler or furrow irrigation, Install dual drip and sprinkler system for frost control Repair and/or replace sprinkler system Install filter station for drip irrigation system Install time clock for irrigation pump Install automatic equipment such as a shut-off switch, backflow prevention device (when chemigation is used) Construct furrow irrigation tailwater recovery/recycling system, including storage facilities Construct water holding structure Construct underground detention / retention unit for tailwater recovery/recycling system	Retain irrigation scheduling service that provides growers with written reports of soil and crop status information throughout the growing season, as well as a seasons end agronomic report
NUTRIENT AND SALT MANAGEMENT		
Prepare Nutrient Management Plan Measure soil moisture content Measure runoff from a field Install and monitor weather station Install shallow groundwater monitoring well Do laboratory well water analysis Do laboratory soil analysis	Install automatic equipment such as a shut-off switch, backflow prevention device Time for a manager and an irrigator to improve the irrigation efficiency and water management (including research, education, and information gathering) Install time clock for irrigation pump to improve irrigation scheduling The cost of additional PVC pipe runs Install or improve sprinkler irrigation system Nutrient trapping Effective cover crops	Consulting fees for technical assistance to implement a nutrient management plan
PESTICIDE RUNOFF / TOXICITY ELIMINATION		
Conduct smart irrigation scheduling Install and monitor weather station Install flow meter on pipeline Do laboratory well water analysis Do laboratory soil analysis	Purchase and install wellhead protection block Install automatic equipment such as a shut-off switch, backflow prevention device Install dual drip and sprinkler system Establish windbreaks/shelterbelts to reduce pesticide drift Apply polyacrylamides (PAM) Construct furrow irrigation tailwater recovery/recycling system Construct underground detention/retention unit for a tailwater recovery/recycling system	The cost of technical assistance to implement an Integrated Pest Management Plan (IPM)
AQUATIC HABITAT PROTECTION		
Prepare Water Quality Buffer Plan	Erosion Control Modify drainage infrastructure Plant riparian vegetation Install irrigation Monitoring and maintenance (for several years to ensure success) Stream bank and channel re-contouring Weed (invasive vegetation) management	Consulting fees for technical assistance to implement a nutrient management plan

2.2.2.4 Unit Costs for Management Practices

This Technical Memo presents unit cost information for the common management practices available to dischargers to achieve compliance with the Draft Order. Water Board staff reviewed information from the United States Department of Agriculture

Natural Resources Conservation Service, the University of California Cooperative Extension (UCCE), and obtained cost quotes from numerous agricultural technical consultants and growers.

2.2.2.4.1 UCCE Conservation Practices

UCCE prepared estimates of costs and potential benefits for a selection of common conservation practices employed in the Central Coast Region. UCCE estimated low, representative, and high costs for the installation and maintenance of the conservation practices. UCCE emphasizes that farmers, ranchers and landowners should evaluate each conservation practice for potential benefits and drawbacks with respect to their own operation.[2] Furthermore, UCCE states their assumptions in preparing the estimates. For example, UCCE did not include in the analysis land ownership and rental rates, which are specific to each operation. Also, the estimates reflect current prices as of 2003, when the studies were prepared.

Table 4 presents a summary of UCCE's cost estimates for nine conservation practices. The complete UCCE studies detail specific actions required to implement each practice and break out costs by machine and non-machine labor, material costs, and annual operation and maintenance costs for up to five years of implementation.

Costs and reduced returns refer to direct costs for practice installation, operation and maintenance, and any negative impact on returns. Two practices, non-engineered water/sediment control basins, and underground outlets, include reduced returns of up to $1,125 from the removal of 0.1 acre of strawberry from production. The representative net change in income for these two practices however, is the greatest of all the practices studied: non-engineered water/sediment control basins *decrease* income by -$1,367/unit/year while underground outlets *increase* income by $1,332/unit/year, over the longer term (four to five years), according to UCCE. These positive and negative effects of implementing conservation practices illustrate how a reduction in returns does not necessarily translate into a reduction in income.

As expected, most conservation practices UCCE evaluated result in a negative effect on income that may be reduced after the initial year of implementation. For example, critical area planting may cost $903/acre in the first year of implementation, but in years 2 – 4, that cost could go down to $121/acre/year.

[2] University of California Cooperative Extension, 2003. Estimated Costs and Potential Benefits for [Nine Conservation Practices] http://www.awqa.org/pubs/coststudies.html

Table 4: Cost Estimates and Potential Benefits for Nine Conservation Practices

CONSERVATION PRACTICE	COSTS PER UNIT		
	Low	**Representative**	High
Annually Planted Cover Crop			
Costs & Reduced Returns	$48	$147	$163
Additional Returns & Reduced Cost	$0	$28	$110
Net Change in Income Per Acre	*-$48*	***-$119***	*-$53*
Annually Planted Grassed Filter Strip (0.5 ac)			
Costs & Reduced Returns	$26	$234	$580
Additional Returns & Reduced Cost	$0	$165	$220
Net Change in Income Per Unit Per Year	*-$26*	***-$69***	*-$360*
Grassed Farm Roads (5,800 Linear Feet/20 ac of Cropland)			
Costs & Reduced Returns	$137	$310	$503
Additional Returns & Reduced Cost	$0	$650	$1,950
Net Change in Income Per Unit (5,800 Linear Ft.) Per Year	*-$137*	***$340***	*$1,447*
Non-Engineered Grassed Waterways (1,000 Linear Ft.)			
Costs & Reduced Returns Per Unit Year 1	$28	$980	$2,250
Costs & Reduced Returns Per Unit Per Year - Years 2-5	$27	$329	$767
Additional Returns & Reduced Cost Per Unit Year 1	$0	$275	$660
Additional Returns & Reduced Cost Per Unit Per Year -Years 2-5	$0	$275	$660
Net Change in Income Per Unit Year 1	*-$28*	***-$705***	*-$1,590*
Net Change in Income Per Unit Per Year - Years 2-4	*-$27*	***-$54***	*-$107*
Non-Engineered Water/Sediment Control Basin (237 Cubic Yards)			
Costs & Reduced Returns Per Unit Year 1	$1,698	$4,061	$7,002
Costs & Reduced Returns Per Unit Per Year - Years 2-5	$354	$2,017	$3,751
Additional Returns & Reduced Cost Per Unit Per Year	$0	$650	$1,950
Net Change in Income Per Unit Year 1	*-$1,698*	***-$3,411***	*-$5,052*
Net Change in Income Per Unit Per Year - Years 2-4	*-$354*	***-$1,367***	*-$1,801*
On-Farm Row Arrangement (25 Acre Parcel)			
Costs & Reduced Returns Per Unit Per Year**	$474	$920	$1,849
Additional Returns & Reduced Cost Per Unit Per Year	$0	$3,500	$7,000
Net Change in Income Per Unit Per Year	*-$474*	***$2,580***	*$5,151*
Net Change in Income Per Acre Per Year	*-$19*	***$103***	*$206*
** First year costs are $125 higher than subsequent years to account for costs to purchase measuring devices			
Perennial Critical Area Planting (Acre)			
Costs & Reduced Returns Per Unit - Year 1	$394	$903	$1,780
Costs & Reduced Returns Per Unit Per Year - Years 2 - 5	$50	$121	$241
Additional Returns & Reduced Costs Per Unit Per Year - Years 1-5	$0	$0	$0
Net Change in Income Per Acre Year 1	*-$394*	***-$903***	*-$1,780*
Net Change in Income Per Acre Per Year - Years 2-5	*-$50*	***-$121***	*-$241*
Perennial Hedgerow Planting (1,000 Linear Ft. X 8 Ft.)			
Costs & Reduced Returns Per Unit Year 1	$1,276	$2,918	$3,938
Costs & Reduced Returns Per Unit Per Year - Years 2-5	$280	$515	$739
Additional Returns & Reduced Cost Per Unit Per Year	$0	$0	$0
Net Change in Income Per Unit (1,000 LF) Year 1	*-$1,276*	***-$2,918***	*-$3,938*
Net Change in Income Per Unit Per Year - Years 2-5	*-$280*	***-$515***	*-$739*
Underground Outlet (400 Linear Ft.)			
Costs & Reduced Returns Per Unit Year 1	$4,630	$5,918	$6,834
Costs & Reduced Returns Per Unit Per Year - Years 2-5	$91	$726	$1,362
Additional Returns & Reduced Cost Per Unit Per Year	$0	$2,058	$4,062
Net Change in Income Per Unit Year 1	*-$4,630*	***-$3,860***	*-$2,772*
Net Change in Income Per Unit Per Year - Years 2-5	*-$91*	***$1,332***	*$2,700*

2.2.2.4.2 Sample Per-Unit Costs from NRCS and Other Sources

The detailed analysis of potential costs and benefits of practice implementation developed by UCCE covers soil conservation practices principally supporting sediment/erosion control and stormwater management objectives. A variety of management practices are available to address other management objectives identified in the Draft Order, including: irrigation management, nutrient and salt management, pesticide runoff/toxicity elimination, and aquatic habitat protection. A broad sample of the per-unit costs associated with these practices is presented in Table 5.

The UCCE cost studies illustrate the variable effect of practice implementation on the bottom line of farming operations. As the UCCE cost studies show, and as Table 2 describes, most practices do yield benefits that improve overall conditions for farming operations, potentially reducing, and in some cases completely covering, the direct cost of implementation. The cost information presented in Table 5, by contrast, simply identifies per unit costs and includes no estimate of potential effects on returns, be they positive or negative.

The practices described in Table 5 range from planning and assessment actions to on-the-ground changes to field operations, including, for example, purchasing or replacing new equipment, constructing new facilities, and managing edge-of-field vegetation for habitat protection. The highest per-unit costs are associated with facility construction. For example, stormwater basins, tailwater recovery facilities, and monitoring wells can exceed several thousand dollars per facility. Habitat restoration and revegetation costs are substantial as well on a per-acre basis, including stream habitat improvement and management costs of approximately $10,000/acre, according to NRCS.

Irrigation management includes several costly practices (in excess of $3,000 per unit). The costs to improve irrigation efficiency may include assessment activities, equipment upgrades, and storage facility construction that represent significant investments for growers. Investments in irrigation efficiency however, may have the greatest potential of all the management practices to generate a stream of benefits that over time are likely to decrease costs for water and energy use. Most critically, irrigation efficiency improvements that result in the elimination of tailwater runoff from the operation allow the grower to avoid the costs of monitoring and treating tailwater discharges.

Table 5: Sample Per-Unit Costs of Management Practices Benefiting Water Quality

MANAGEMENT PRACTICE	DESCRIPTION	UNIT	UNIT COST*	COST RANGE		SOURCE
				Low	High	
SEDIMENT/EROSION CONTROL/STORMWATER MANAGEMENT						
Conservation Cover	Orchard/Vineyard Floor Cover	Acre		$429.91	$690.18	1
	Erosion Control, Water Quality, Wildlife	Acre		$569.71	$1,255.34	1
	Permanent Native Cover; Prep, Seed/Seeding, Weed Control	Acre		$1,252.76	$1,445.26	1
	Perm Native Cover Arid Lands; Prep, Seed/Seeding, Weed Control	Acre		$1,271.81	$1,736.81	1
Conservation Crop Rotation	Rotation for IPM/Organic/SCI/Erosion	Acre	$394.36			1
Cover Crop	Cover Crop	Acre		$159.14	$249.14	1
Cover Crop for Roads	Seasonal Road Cover, Non-Irrigated	Acre	$96.06			1
Residue and Tillage Management	Residue Management	Acre		$50.88	$61.14	1
Sediment Basin	Embankment Sediment Basin <1,200 CYD	No.	$8,190.00			1
	Embankment Sediment Basin	CYD	$3.15			2
Well Decommissioning	1,000-foot deep, 6-inch diameter	Foot	$3.75			1
	30-foot deep, 48-inch diameter	Foot	$140.65			1
Field Border	Seedbed Preparation, Seed	Acre		$392.46	$969.18	1
Filter Strip	Seedbed Prep, Seeding	Acre		$461.68	$1,015.30	1
Grassed Waterway	Grassed Waterway	Acre		$811.88	$1,246.58	1
Underground Outlet	4" diameter	Foot		$5.95	$19.82	1
	12" diameter	Foot		$19.82	$49.52	1
Polyacrylamides Erosion Control	Furrow erosion control	Acre	$50.00			1
Mulching	Soil Fertility, Moisture, Weed & Erosion Control	Acre		$314.05	$807.50	1
	Soil Cover - Moisture, Weed, Erosion Control	Acre				1
Stormwater Management Plan	Stormwater Management Plan for typical scale operation	-		$3,000.00	$1M	3
Greenhouse Covering	Permanent covering construction costs	Sq. Ft.		$6.00	$12.00	24
IRRIGATION MANAGEMENT						
Irrigation System, Microirrigation	Row-Field Cropland	Acre		$990.00	$1,500.00	1
	Nursery or Greenhouse	Acre	$3,000.00			1
	Orchard/vineyard <10 ac and >10ac	Acre		$1,400.00	$2,000.00	1
	Micro Irrigation on Hillside	Acre	$1,500.00			1
	Upgrade media filter tank	Each	$4,500.00			1
	Upgrade media filter station	Each	$15,000.00			1
	Upgrade screen or disk filter unit	Each	$1,800.00			1
	Upgrade screen or disk filter station	Each	$7,000.00			1
Drip irrigation	Materials and installation (w/filter station) new system in vineyard	Acre	$2,353.00			4
	New wellhead protection block	Each	$8,000.00			5

MANAGEMENT PRACTICE	DESCRIPTION	UNIT	UNIT COST*	COST RANGE		SOURCE
Row Arrangement	Row Arrangement Moderate to Steep Slope	Acre		$100.00	$150.00	1
Water and Sediment Control Basin	Embankment, <1,200 CYD	Each	$8,190.00			1
	Earthen Reservoir	Acre-Ft	$1,020.00			1
Irrigation Regulating Reservoir	Tank, <15K gal	Gal	$1.00			1
Pond Sealing or Lining, Soil Cement	Pond Sealing, Soil Cement	SqFt	$0.72			1
Roof Runoff Structure	Rain Gutters & Downspouts	Foot	$11.64			1
Water Harvesting Catchment	Storage Tank	Each		$2,500.00	$3,500.00	1
	Catchment	Each	$1,500.00			1
Runoff Management System	Runoff Management System	Each	$10,000.00			1
Tailwater Recovery System	Installed in: Crop/Pasture	Acre		$153.00	$306.00	1
	Installed in: Nursery	Acre		$1,632.00	$2,550.00	1
	Excavated pond/basin/catchment	CYD	$1.58			2
	Embankment pond/basin/catchment	CYD	$3.15			2
	Underground detention/retention unit	CuFt	$6.00			6
Irrigation Efficiency Measurement	Equipment to measure applied irrigation water	Each		$800.00	$1,200.00	7
	Equipment Installation	Each	$500.00			7
	Mobile Irrigation Lab: measure Distribution Uniformity (furrow length)	1/4 Mile		$950.00	$1,100.00	8
		1/2 Mile		$1,250.00	$1,450.00	8
	Equipment to measure runoff from a field: flume with a stilling well and pressure transducer	Each		$2,200.00	$2,600.00	7
Consulting Costs for Irrigation Management Plan Implementation	Irrigation Scheduling Service: monitor soil moisture 1/wk; recommend irrigation timing; reports, yield analysis; 2 visits/week	Acre		$20.00	$45.00	8
	Single irrigation scheduling visit	Acre	$3.50			8
NUTRIENT AND SALT MANAGEMENT						
Nutrient Management	Implemented for Seasonally Planted Crops	Acre	$55.00			1
	Implemented for Tree and Vine Crops	Acre	$56.00			1
Irrigation/Chemigation System Improvements	Backflow Prevention Check Valves	Each		$95.00	$435.00	9
	Chemigation Check Valves	Each		$597.00	$1,097.00	9
	Ancillary Equipment: smaller check valves, switches, controllers	Each		$21.00	$134.00	9
	Chemical injection pump	Each	$1,022.00			9
Vegetated Treatment Area	Vegetated Treatment Area	Acre	$404.00			1
Fertilizer Additives to Increase Nitrogen Utilization by Crop	Additive (urease inhibitor) to nitrogen-based fertilizers	Per pound of Fertilizer		4.5 cents	6 cents	10
Equipment to Measure Soil Moisture, Crop Water Demand, Evapotranspiration	Tensiometer	Each		$70.00	$120.00	11
	Atmometer equipped with a data logger. ETgage Model E	Each	$608.00			13
	ETGage Model A	Each	$192.00			13
Quantifying Nutrients in	Groundwater Monitoring Well (shallow, 40-ft)	Each	$6,000.00			14

MANAGEMENT PRACTICE	DESCRIPTION	UNIT	UNIT COST*	COST RANGE		SOURCE
Groundwater	Laboratory analyses of water sample	Each	$55.00			15
	Laboratory analyses of soil sample	Each		$40.00	$60.00	15
Equipment Rental to Measure Soil Moisture and Service to determine actual Crop Water Demand	4 tensiometers and central communication unit	Acre/Yr	$152.00			12
Consulting Costs Associated with Nutrient Management Plan Implementation	Crop logging service (tissue sampling prior to each side dress and irrigation, record keeping of pertinent agronomic information such as varieties, irrigations, fertilizer applications, and yield; season end agronomic report with cost, and yield analysis)	Acre/Yr		$11.10	$19.47	8
	Field sampling and consulting fee: Sampling, GPS, Report	Day	$766.00			8
		Acre	$20.00			8
	Certified Crop Advisor	Hour		$120.00	$240.00	18
PESTICIDE RUNOFF/TOXICITY ELIMINATION						
Pest Management	Year-Round IPM Level 1	Acre		$88.00	$160.00	1
	Reduced Risk Level 1	Acre		$45.00	$117.00	1
	Basic IPM consulting; Wine Grapes	Ac/Yr	$22.00			17
	Basic IPM consulting: Pears	Ac/Yr	$40.00			17
	High Cost Organic Pest Management Practices	Acre	$72.00			1
	Pest Suppression during Transition to Organic	Acre	$95.00			1
Precision Pest Control Application	Precision Spray Technology	Acre	$60.00			1
	Fumigant, Sprinklers for crop irrigation and VOC control	Acre	$40.00			1
Consulting Services	IPM and related consultations by: Certified Professional Agronomist, Accredited Farm Manager, Accredited Rural Appraiser, Certified Professional Soil Scientist	Hour		$110.00	$250.00	18
		Acre		$5.00	$20.00	19
Windbreak/Shelterbelt Establishment	Direct costs to implement practices to reduce drift	Foot	$1.76			20
Tailwater Recovery/Recycling System	Waste Utilization	Acre		$9.00	$10.00	20
	Storage Facility	Each		$13,000.00	$18,000.00	20
	Water Structure	Each		$1,000.00	$1,200.00	20
Construct system to collect tailwater	107 acres (total cost $200,000) Includes underground pipeline to pond	Acre	$1,869.00			21
Products to Treat Water to Reduce Pesticide Content	PAM total cost per acre; includes product, labor, other	Acre	$25.70			22
	PAM: Liquid; 2 to 3 applications/year to wine grapes	Ac/Yr		$54.00	$81.00	23
AQUATIC HABITAT PROTECTION						
Critical Area Planting	From seed to establishment	Acre		$1,043.56	$4,673.70	1
Channel Bank Vegetation	Native Tree & Shrub Establishment	Acre	$3,324.28			1
Stream Habitat Improvement and Management	Stream Improvement	Acre	$10,027.20			1
Channel Stabilization	Bioengineered Stabilization	Foot	$50.00			1
Riparian Herbaceous Cover	Native Seed, Drilled	Acre	$1,085.86			1

MANAGEMENT PRACTICE	DESCRIPTION	UNIT	UNIT COST*	COST RANGE		SOURCE
	Native Species, Plugs	Acre	$4,392.40			1
Riparian Forest Buffer	Establishment	Acre		$640.05	$2,282.25	1
Hedgerow Planting	Hedgerow Planting	Foot		$2.25	$4.07	1
Restoration and Management of Rare and Declining Habitats	Arundo Eradication	Acre		$1,000.00	$4,310.00	1
	Blackberry Eradication	Acre		$1,142.50	$3,770.00	1
	Perennial Pepperwood Eradication	Acre		$79.00	$180.00	1
	Thistle or Other Invasive Eradication	Acre		$84.50	$129.00	1
	Wildlife Structures	Acre		$20.00	$40.00	1
Establishing Upland Wildlife Habitat	Irrigation System, Microirrigation	Acre	$800.00			1
Native Perennial Herbaceous Veg.	Irrigation System, Microirrigation	Acre	$1,678.16			1
Wetland Wildlife Habitat Mgmt.	Various Intensity	Acre	$20.00	$100.00		1
Constructed Wetland	Constructed Wetland	Acre	$4,351.76			1
Wetland Restoration	Wetland Restoration - Shaping & Grading	Acre	$330.76			1
	Wetland Restoration - Planting Only	Acre	$1,282.64			1
	Wetland Restoration - Southern California	Acre	$595.82			1
	Wetland Restoration - Coast	Acre	$2,470.58			1
Wetland Enhancement	Various Intensity	Acre		$55.00	$205.00	1
Tree/Shrub Site Preparation	Hand Site Preparation, Light	Acre	$1,045.00			1
Early Successional Habitat Development/Management	Early Successional Habitat Management	Acre	$25.00			1

* A low to high range is provided where available. The reported unit cost from Natural Resources Conservation Service (NRCS), Environmental Quality Incentives Program (EQIP) source is two times the unit cost provided by NRCS. Costs provided by NRCS are based on EQIP Program's cost basis for financial assistance, which is one-half the cost to implement the practice (personal communication, Roney Gutierrez, NRCS)

SOURCES for Table 5:

1 Natural Resources Conservation Service (NRCS), Environmental Quality Incentives Program 2010 Cost Tables, provided by Roney Gutierrez, NRCS.
2 Beau Schoch - Engineer USDA - NRCS Salinas Service Center
3 Dale Gropp, former Civil Engineer Technician at Cachuma RCD
4 Quote from Pacific Ag Water, Santa Maria
5 Coastal nursery manager re: installation of a new block Sept-Nov 2008
6 Hanes Geo Components, Area Sales Manager
7 USDA Engineer, NRCS Coastal RCD
8 Irrigation consultant and CCA who wishes to remain anonymous
9 Quote from Pacific Ag Water, Santa Maria
10 Regional Manager, Agrotain International
11 Irrometer, Google devices and Ben Meadows; ETgage Company
12 Hortau Simplified Irrigation
13 ETgage.com; ETgage Company rep., Loveland, CO
14 RWQCB, NPS Section 319 proposal for Pinto Lake grant
15 A&L Western laboratories
16 Numerous Certified Crop Advisors quotes for services
17 Devin W. Gordon, AG Unlimited, Ukiah, CA
18 Numerous Pesticide Crop Advisors quotes for services
19 Pesticide Crop Advisor, Yuba City, CA; Devin W. Gordon, AG Unlimited
20 NRCS online EQIP data for Pacific Region: http://www.ers.usda.gov/Data/eqip/
21 Costa Family Farms. March 29, 2010 letter to Water Board member Monica Hunter
22 Michael Cahn, Irrigation Specialist UC Cooperative Extension, Davis
23 Stillwaters Aviation
24 California Association of Nurseries and Garden Centers, March 30, 2010 letter to Water Board staff. http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order/group_2.pdf

Management practices vary in terms of scope, making it difficult to identify actual costs of practices. For example, a runoff management system ($10,000 each) may include several of the individual tailwater recovery practices listed separately at lower per-unit cost, such as excavated pond/basin/catchments at $1.58/cubic yard excavated. Table 5 is therefore intended to provide as broad a sample as possible from available information, and to illustrate the range of options available for selecting the appropriate suite of practices to achieve specific management objectives. While entries are listed under management practice categories, there is considerable overlap among the categories. For example, tailwater recovery is a management practice supporting both irrigation and pesticide runoff management objectives. For the purposes of complying with the Draft Order, a grower's selection of a particular management practice would be based on the effectiveness and extent of existing practices and water quality issues specific to the operation.

2.2.2.4.3 Management Cost Estimates from the Central Valley Region

Table 6 provides cost figures from the Central Valley Water Board to compare with Table 5 and UCCE expenditures (Table 4) above. The starkly different costs reported for the low and high cost ranges, as well as among the various sources available, point to the level of uncertainty associated with any estimates of actual individual or cumulative cost of management practice implementation.

Table 6: Management Practice Costs for Central Valley Water Board Region

Management Practice	Cost Range	Source of Information*
Nutrient Management	$5–$9/acre-year excludes idle land	Blackman 2010; Fry 2010; Kasapligil 2010; and Rathburn 2010
Irrigation Water Management	$50–$88/acre-year excludes idle land	Fry 2010; IID 2007
Tailwater Recovery System	$89/acre-year	NRCS 2010; IID 2007
Pressurized Irrigation System	$160/acre-year	NRCS 2010; IID 2007
Cover Crop	$48/acre-year	Tourte and Buchanan 2003a, b, c
Buffer Strip-Sediment Trap	$1/acre-year	Tourte and Buchanan 2003a, b, c
Abandoned Well Protection	$250/well/year	Lewis 2010

IID = Imperial Irrigation District, NRCS = Natural Resources Conservation Service, UCCE = University of California Cooperative Extension.

* Secondary sources cited in CVRWQCB, 2010, p. 2-17.

2.2.2.4.4 Discharger Estimates of Cost

Groups representing dischargers provided cost information to the Water Board in response to the February 1, 2010 release of Preliminary Draft Staff Recommendations for an updated Agricultural Order. The information, presented in letters[3] and public comments at two Public Workshops (May 12 and July 8, 2010), reported on information

[3] Grower-Shipper Association of Central California, March 31, 2010 and May 5, 2010 letters to Central Coast Water Board Chair Jeffrey Young; Central Coast Agricultural Water Quality Coalition April 1, 2010 letter to Jeffrey Young.

collected through various methods including surveys and interviews with grower members, and economic modeling to estimate the economic effects of Water Board staff's draft recommendations. The results were gross estimates and indicated a wide range of approximate values for per acre costs of compliance in select crops, and county and regional losses to: business revenues, indirect tax revenue, labor income, and jobs.

The discharger representatives' estimates were based on the February 1, 2010 Preliminary Draft Staff Recommendations, and on assumptions about monitoring requirements, which were not included in those Staff Recommendations. The stated requirements in the February Preliminary Draft Staff Recommendations and any assumptions about their implementation are no longer valid, since Water Board staff has modified the Draft Order.

2.2.2.5 Conclusions on Cost of Management Practice Implementation

Most water quality management practices achieve multiple objectives, though they often vary in terms of scope, making it difficult to identify actual costs. Management practices typically result in costs that lessen after the initial year of implementation. Detailed studies of implementation costs illustrate both positive and negative effects and reveal that a reduction in returns does not necessarily translate into similar effects on income. Most practices do yield benefits that improve overall conditions for farming operations, partially reducing the direct cost of implementation.

The highest per-unit costs are associated with management practices that require facility construction. Habitat restoration and revegetation costs can be substantial on a per-acre basis. Investments in irrigation management practices may have the greatest potential to generate a stream of benefits that over time support cost-effective farming operations. Notably, irrigation efficiency improvements that result in the elimination of tailwater runoff from the operation allow the grower to avoid the costs of treating discharges.

For the purposes of complying with the Draft Order, a grower's selection of a particular management practice would be based on the effectiveness and extent of existing practices, and on water quality conditions specific to the operation. However, starkly different costs reported for the low and high cost ranges, as well as among the various sources available, point to the level of uncertainty associated with any estimates of actual individual or cumulative cost of management practice implementation. Furthermore, Water Board staff possesses limited information to determine the extent of management practice implementation to date.

Water Board staff therefore applied best professional judgment and conservative assumptions in constructing an estimate of total cost for management practice implementation. Staff estimated costs in five management practice categories using median costs/acre for practices in each category (Table 7). The categories were then summed and total costs for the first year and for all five years of the program were calculated.

In the absence of information about the current extent of management practice implementation, Water Board staff made assumptions concerning the number of acres to which dischargers might apply management practices to achieve compliance with the Draft Order. For practices to manage sediment, erosion and stormwater, staff conservatively assumed the basis, or the area potentially requiring management improvements, to be all irrigated farmland. However, staff then used a correction factor of five percent to estimate the number of acres that might be subject to actual management to reduce erosion, sedimentation and stormwater impacts to water quality.

The management practice cost per acre was derived from the broad selection of costs staff compiled and reported in Table 5. Staff calculated the median of all reported values presented in cost per acre, using the high value of the cost range where available to maintain a conservative bias. This cost per acre value was then applied to the acres that might be subject to management practice implementation.

Water Board staff followed this approach for each management practice category, using a different area basis and correction factors based on professional judgment. For example, the basis for irrigation management was assumed to be operations that generate tailwater and staff assumed 50 percent of these acres might be subject to implementation of an irrigation management practice. For nutrient and salt management practices, Water Board staff used the total acreage planted in vegetables as a basis, since vegetables have a higher potential to load groundwater with nitrogen. For both pesticide runoff/toxicity elimination and aquatic habitat protection, staff used the number of operations along listed waterbodies as a basis for calculating acres subject to practice implementation. Staff used the median operation size of 20 acres as the multiplier for estimating the acres potentially requiring treatment for pesticide/toxicity elimination.

Costs for the first year of implementation was the basis for calculating costs in subsequent years, which staff assumed would be from 10 to 50 percent of the first year's cost. Staff did not account for the Draft Order's sequencing of compliance milestones (e.g., aquatic habitat management is not required for Years 1-5, but rather by Year 3), and as a result the estimate of costs for the entire five-year program is higher than it would be if staff assumed a phased implementation of practices.

Several other assumptions further contribute to a bias toward higher estimates of total cost. Staff assumed independence among the investments made in each management practice category, discounting the likely effect that an investment in one category, would reduce the need to invest in another. Staff expects this effect would be stronger in some categories than others. For example, investments in irrigation management have a strong potential to provide benefits to nutrient management by reducing nitrogen loading in tailwater and groundwater. Similarly, aquatic habitat protection could reduce the need for expenditures on practices to control sediment and stormwater, and to eliminate pesticide runoff. Without a way to quantify this overlapping of benefits among

implementation practices (also described in Table 2), the total estimate likely exaggerates actual expenditures.

Table 7: Estimation of Cost to Implement Management Practices

Management Practice Category	Area Basis (Acres)	Acres/ Operation	Acres	Correction Factor	Acres Practice Applied to:	Cost/Acre [d]	Cost Year 1	% Year 1 Cost in Yrs 2-4	Cost Years 2-4	Cost 5 Years
Sediment / Erosion Control & Stormwater Management	Total irrigated farm acreage[a]	NA	539,284	5%	26,964	$992	$26,748,486	25%	$26,748,486	$53,496,973
Irrigation Management	Operations with tailwater[b]	NA	74,121	50%	37,061	$903	$33,465,632	10%	$13,386,253	$46,851,884
Nutrient & Salt Management	Total Vegetable Crop acreage[c]	NA	444,443	20%	88,889	$56	$4,977,762	25%	$4,977,762	$9,955,523
Pesticide Runoff / Toxicity Elimination	102 Operations on toxicity impaired streams	20	2,040	50%	1,020	$72	$73,440	50%	$146,880	$220,320
Aquatic Habitat Protection	10 Large Operations on temp. & turbidity impaired streams	1,000	10,000	50%	5,000	$1,184	$5,920,000	10%	$2,368,000	$8,288,000
						One Year	**$71,185,320**		**Five Years**	**$118,812,700**
						Per Operation	**$23,728**		**Per Operation**	**$39,604**

[a] State Farmland Mapping Program (FMMP) data consists of farmland classifications that include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.

[c] Total Vegetable Crop acreage from County Crop Reports, Table 12. Water Board staff assumed these crops have high potential to discharge nitrogen to groundwater.

[b] Amount of irrigated acreage that has tailwater and is enrolled and active. Source: Central Coast Regional Water Quality Control Board Agricultural Regulatory Program Database, December 2009. While the number of operations is dynamic, Water Board staff has not made a broad effort to verify the accuracy of reported irrigated acreage and tailwater acreage. Growers can continually update their irrigated acreage and tailwater acreage to reflect seasonal growing changes. The Water Board officially requested acreage updates in 2007 and 2008.

[d] Median of high end of cost range/acre, or, unit cost/acre, whichever is higher from Table 5.

2.2.3 Cost of Aquatic Habitat Protection Using Buffers

The following discussion of costs associated with Draft Order requirements for aquatic habitat protection is provided to examine whether there is potential for these costs to affect regional and/or county economies. This discussion is presented separate from the previous discussion of aquatic habitat management practices available to individual growers and farm operations (2.2.2 Costs of Implementing Management Practices).

While implementation of a waterbody buffer is an option available to individual growers to achieve habitat management objectives, Water Board staff does not know how many growers will select this option. As such, Water Board staff estimated potential costs of buffers only for grower operations that are specifically required to implement them in the Draft Order: those operations larger than 1,000 acres, and adjacent to a waterbody listed as impaired for temperature, sediment or turbidity on the Clean Water Act Section 303(d) List of Impaired Waters.

Water Board staff recognizes that buffers provide benefits that can be met through other means, but anticipates that buffers could be selected by growers as the most effective means for maintaining the riparian functions such as, stream bank stabilization and erosion control; stream shading and temperature control; chemical and sediment filtration; flood water storage; aquatic life support; and wildlife support. The greatest potential benefit to the grower of implementing a buffer could be the avoided cost of implementing other potentially more expensive water quality management practices to maintain these functions.

To serve as a basis for considering local and regional economic effects from implementing habitat buffers, Water Board staff prepared a spatial analysis of potentially affected farmland and made assumptions regarding the productivity and value of those lands. Water Board staff purposely made conservative assumptions in calculating the approximate scale of anticipated effects, and considers the resulting cost estimate to be considerably higher than is reasonably likely to occur.

2.2.3.1 Spatial Analysis to Support Cost Analysis

Water Board staff estimated the amount of irrigated agricultural land that would be removed from production in order to establish 30- and 50-foot wide habitat buffers. Only lands in operations greater than 1,000 acres and adjacent to waterbodies impaired by temperature, sediment or turbidity were included. Staff selected operations over 1,000 acres using the GIS crop maps distributed by the Agriculture Commissioner's Office in each Central Coast county (excluding San Benito and Ventura Counties). These maps are updated every two years within each county. For the identification of impaired waterbodies, staff used a 2008 version of the 2006 Clean Water Act Section 303(d) List of Impaired Waters spatial data file maintained by the Central Coast Ambient Monitoring Program.

Of all operations with 1,000 acres or more, the analysis identified only ten adjacent to waterbodies impaired for temperature, sediment or turbidity (Table 8). For these operations, Water Board staff determined the acreage that would be included in 30-ft and 50-ft buffers.

Table 8: Acreage Potentially Affected by Buffers on Waterbodies Impaired by Sediment [a]

County	Grower Operation	Total Acres	Acres in 30-ft buffer	Acres in 50-ft buffer
Monterey	1	4,017	12.54	43.00
	2	2,164	21.60	37.00
	3	1,329	7.70	27.00
	4	3,879	0.20	0.20
	5	1,020	0.06	0.13
	6	10,619	8.95	30.00
	7	1,132	4.80	17.00
	Subtotal	*24,160*	*56*	*154*
San Luis Obispo	1	1,274	8.12	14.00
	Subtotal	*1,274*	*8*	*14*
Santa Barbara	1	7,331	18.52	65.00
	2	1,490	0.10	0.30
	Subtotal	*8,821*	*19*	*65*
	TOTALS	**34,255**	**83**	**234**

[a] Includes only operations > 1,000 acres in size and adjacent to or including waterbodies listed for temperature, sediment or turbidity on the 2006 Clean Water Act Section 303(d) List of Impaired Waterbodies.

2.2.3.1.1 Crop Report Gross Value Analysis

To assess the potential economic effects of establishing buffers, Water Board staff calculated an approximate value of current agricultural productivity from farmlands. Water Board staff compiled county crop report information on crop value and acreage to estimate average gross values per acre of crops requiring irrigation (Table 9). The resulting average crop value per acre ranges from $5,739/ac in San Benito County, to $22,047/ac in Santa Cruz County. This broad range reflects the variation in both crop types and crop values grown throughout the Central Coast. The regional average crop value per acre is $9,387/ac.

2.2.3.1.1.1 Potential Loss in Gross Production and Acreage

Based on the estimated acres of farmland included in buffers (Table 8), and average crop value (Table 9), Water Board staff estimated potential loss in production that would result from implementing 30- and 50-ft habitat protection buffers (Table 10). A range of approximately $774K to $2.2M of gross value would be lost to riparian buffers region-wide, based on this analysis. This represents approximately 0.24% to 0.68% of total

crop value in the operations affected. Lost income to an individual grower, while not known, is a fraction of gross value lost, since the grower avoids costs of farming areas no longer in production.

2.2.3.2 Factors to Consider Relative to Buffer Cost Estimates

There are several factors to consider when reviewing these estimates of economic effects of implementing buffers on irrigated farm operations. However, for larger operations loss of crop productivity in the range of 0.21% – 1.1% could be less than losses to smaller operations implementing buffers, with a larger proportion of the entire operation dedicated to the buffer. The use of buffers could also result in avoided costs for other potentially high cost methods to achieve farm water quality management objectives, including, for example, tailwater treatment and sedimentation control facilities.

As stated above, Water Board staff considers these estimates to be higher than the economic effects that may actually occur. This is because of several conservative assumptions made in constructing the analysis, including:

- *Size of Buffer:* The buffer dimension of 50 feet used in the analysis is potentially larger than what is necessary to protect and maintain beneficial uses affected by discharges from irrigated agriculture. Buffers of smaller dimensions would reduce the effect on losses in acreage and productivity.
- *Uniform Implementation:* Water Board staff does not anticipate that buffers would be established in all 1,000-acre plus operations adjacent to impaired waterbodies. Staff expects that some growers will pursue alternatives to buffers on portions of riparian-adjacent farmland that provide comparable protection, restoration and maintenance of beneficial uses.
- *Current Productivity of Farmland Adjacent to Waterbodies:* The analysis assumed that all waterbody-adjacent farmland is currently productive at the average rate for the county in which they are located. This is not the case and there can be many reasons for this, including: land in poor agronomic condition; land impacted by geomorphologic factors (e.g., bank failure, channel migration, overbank sediment deposits, floodplain saturation); flood-related crop loss. These conditions are among those taken into consideration when growers establish the limits of cultivation. Consequently, some lands are currently in riparian or semi-riparian conditions by default, while others are uncultivated and/or entirely de-vegetated, serving as food safety setbacks. Either way, the land is not in production, as was assumed in the analysis. Dedicating low or non-productive lands to riparian buffers would have no near-term effect on individual farm or regional agricultural productivity.
- *No Change to Price-Output Equilibrium:* Lower productivity, (i.e., output, supply), even reductions as low as one to two percent, interacts with market demand to influence the price-output equilibrium for agricultural products. As such, the value per unit of output would be expected to increase as the market compensates for reduced supply. While Water Board staff made no attempt to model the change in value – and anticipates a relatively minor overall impact – the effect would be to reduce the

estimated loss in productivity, as expressed in the value per acre figures used in the analysis.

Other areas of uncertainty in the analysis may either overstate or understate the estimated effect. These include specific attributes of the data Water Board staff relied upon, including the accuracy of county crop reporting, and Staff's aggregation of those data.

A final factor to consider is that implementation of waterbody buffers would not happen immediately and/or simultaneously throughout the region. The more probable phasing of buffer implementation over a period of years would be expected to significantly lessen economic effects as market forces and changes in farming operations play out. On the other hand, the effect would be recurring, or at least continue beyond a single year, in that some riparian lands with agricultural production potential would be permanently removed from production.

Table 9: Estimated Average Gross Value per Acre of Select Crops, by County (2009)[4]

County	Vegetable Crops			Fruit & Nuts			Seed Crops			Total Irrigated Crops		
	Value (Millions)	Acres	Average $/Ac	Value (Millions)	Acres	Average $/Ac	Value (Millions)	Acres	Average $/Ac	Value	Acres	Average $/Ac
Santa Cruz	$47	7,431	$6,322	$317	9,074	$34,925				$364M	16,505	$22,047
San Luis Obispo	$187	31,926	$5,867	$271	46,034	$5,897				$459M	77,960	$5,885
Monterey	$2,632	314,311	$8,373	$1,043	55,095	$18,925	$9	4,995	$1,863	$3.7 B	374,401	$9,839
Santa Barbara	$469	65,775	$7,135	$547	39,963	$13,698	$10	2,199	$4,701	$1.0 B	107,937	$9,515
San Benito	$157	25,000	$6,262	$31	7,641	$4,029				$187M	32,641	$5,739
TOTAL	$3,492	444,443	$7,857	$2,209	157,807	$14,000	$20	7,194	$2,730	$5.7 Billion	609,444	$9,387

Table 10: Calculated Loss in Gross Production Value and Crop Acreage for Habitat Buffers [a]

County	Avg. Crop Value per Acre*	Total Operation Acres	Total Operation Crop Value	Acres and Value Loss to 30' Buffer			Acres and Value Loss to 50' Buffer		
				Acres	Gross Value	% of Total Operation Crop Value*	Acres	Gross Value	% of Total Operation Crop Value*
Monterey	$9,839	24,160	$237,710,240	56	$549,508	0.23%	154	$1,518,453	0.64%
San Luis Obispo	$5,885	1,274	$7,497,490	8	$47,786	0.64%	14	$82,390	1.10%
Santa Barbara	$9,515	8,821	$83,931,815	19	$177,169	0.21%	65	$621,330	0.74%
Total Operation Loss to Buffers		**34,255**	**$329,139,545**	**83**	**$774,464**	**0.24%**	**234**	**$2,222,172**	**0.68%**

[a] For operations 1,000 acres or larger and adjacent to or including waterbodies impaired for temperature, sediment or turbidity (See Table 8).

* Vegetable, Fruit & Nut, and Seed Crops only (see Table 9).

[4] All figures for 2009 with the exception of San Benito County for which Water Board staff used 2008 crop reports, since 2009 crop report was unavailable when calculated.

2.2.4 Monitoring Program Costs

Water Board staff price estimates for MRP analytical costs come from several commercial laboratory bids to the Central Coast Ambient Monitoring Program (CCAMP) and Surface Water Ambient Monitoring Program contractor costs. Anywhere from two to four prices per analyte were used to develop average costs. Water quality lab bids included BC Analytical, Creek Environmental Lab (no longer in business), Sequoia Labs, Surface Water Ambient Monitoring Program (SWAMP) and Groundwater Ambient Monitoring and Assessment Program (GAMA). Pyrethroid pesticide analysis costs came from SWAMP and CalTest, a private water quality lab. Bioassessment pricing came from Pacific Ecorisk and SWAMP. Actual prices charged to a cooperative monitoring program or individual may vary from these estimates. Attachment 1 includes monitoring cost information tables supporting the following discussion of receiving water, groundwater, and individual monitoring.

2.2.4.1 Receiving Water Monitoring

The receiving water monitoring program has estimated analytical costs ranging from about $600,000 to $785,000, depending on site count. The current cooperative monitoring program requires 50 sites (plus five percent field duplicates). The proposed program requires at least one site on each of 37 impaired waterbodies. The price range reflects this site count spread. The proposed MRP includes the basic trend component of the current program. In addition, it adds several analytes to the basic monitoring suite, water and sediment chemistry in the second year of the program, and two stormwater samples taken at each trend site each winter. It adds quarterly and stormwater monitoring for pathogen indicators. It eliminates follow-up monitoring entirely (which in the original program was 20 percent of total program costs) and reduces benthic invertebrate monitoring down from annually to once per permit term.

In addition to analytical costs, the cooperative receiving water monitoring program must pay sampling costs, administrative costs, and reporting costs. Depending on how the program is structured these can range widely. For example, if sampling costs are charged on a per site basis, at $500 per site per visit, these costs could range up to $250,000 per year. However, if program staff conducts the sampling these costs could be significantly lower. The existing Cooperative Monitoring Program (CMP) maintains two full-time staff, which probably cost the program at least an additional $150,000 per year. Some of the reporting costs are absorbed by staff. Consulting laboratories may charge additional data management and analysis costs. Using the above estimates for consultant site visits costs and staffing costs, the total program costs would range between $1,000,000 and $1,185,000 per year (with higher costs for the second year averaged out through all years of the program), or $5 to $5.5 million for the five-year program.

Dropping site count from the 50 required by the current program down to one site per listed waterbody reduces receiving water monitoring costs by about 25 percent. As a result, some larger waterbodies like the Salinas River would have poor site coverage for understanding spatial extent of agricultural impacts. Though CCAMP monitoring can

help address this, CCAMP watershed rotation monitoring only occurs once every five years.

The new elements of the program (pollutants in water and sediment, additional monthly parameters, Toxicity Identification Evaluations (TIEs)) add approximately $130,000 to $148,000 per year in analytical costs (amortizing once in five year costs over each of the five years of the program). This is assuming 10 TIEs are conducted per year. If no TIEs are conducted, additional monitoring costs are approximately $76,000 to $97,000 per year. These costs are offset by elimination of follow-up monitoring, reduction of benthic invertebrate monitoring to once per permit term, and any site count reductions.

2.2.4.2 Groundwater Monitoring

Tier 1 and Tier 2 analytical cost estimates for groundwater monitoring described in the MRP are approximately $190 per well for the five-year program (with both sampling events in the first year), using cost estimates from the GAMA program. Tier 3 analytical costs are approximately $760 per well for the five-year program (four times in the first year; annually thereafter for a total of eight sampling events). This does not include costs paid to consultants to collect the samples, assess depth to groundwater and deliver the results. Staff estimates these additional costs at approximately $300 per visit. Staff assumes that there are 1,600 dischargers that fall into Tiers 1 and 2 and another 100 that fall into Tier 3. Based on these numbers and a consultant visit fee of $500 (with a discounted rate of $150 for sampling a second well), and assuming one well sampled for Tiers 1 and 2, and two wells sampled for Tier 3, this program element would cost approximately $1,740,000, or $790 for Tier 1 & 2 growers and $4,740 for Tier 3 growers, for the five-year term of the Order.

2.2.4.3 Individual Monitoring

Tier 1 and 2 does not require any surface water quality monitoring. Tier 3 individual monitoring is further subdivided into operations between 1,000 and 5,000 acres, and operations over 5,000 acres. Staff estimates that analytical costs will be approximately $3,150 per site sampled for smaller operations (1,000 to 5,000 acres) and $6,300 for larger operations (>5,000 acres). Most of this cost is from toxicity sampling. In addition, for each site sampled, flow and field parameters are collected, which may cost between $500 and $750 each visit. This brings the annual cost to between $4,100 and $4,600 for smaller Tier 3 operations and between $8,200 and $9,300 for larger operations.

Tier 3 tailwater pond monitoring can be done using United States Environmental Protection Agency approved field methodologies or a commercial laboratory. Commercial laboratory analysis costs are estimated at $180/year (4 irrigation season, 2 wet season samples). If a consultant is required to visit the pond for each of the six sampling events, at $500 - $750/event, that could add $3,000 to $4,500 to annual costs.

Staff estimate that there are approximately 85 dischargers that fall into the 1,000 – 5,000 acre Tier 3 category, and 15 falling into the >5000 category. Total cost of implementing this monitoring element is approximately $500,000 per year, or $2.5 million for the five-year program. This does not include additional costs for tailwater

pond monitoring. Staff does not currently have an estimate of how many tailwater ponds would fall into the Tier 3 category.

2.2.4.4 Quality Assurance Project Plan (QAPP)

QAPP development for a large complex project can cost up to $10,000. If templates with all language for basic individual sampling except for some minor details are prepared and made available, costs could be vastly reduced. Staff estimates these documents could be prepared for $750 or less for individual and/or groundwater monitoring, assuming a ready-to-use QAPP template is available for use. This should be a one-time cost for the term of the program.

2.2.4.5 Photo-Monitoring

To serve as a basis for estimating costs of habitat buffer photo-monitoring, Water Board staff prepared a spatial analysis to estimate the amount of irrigated agricultural land that exists adjacent to streams. Staff selected all streams included in National Hydrographic Data-Plus data and "clipped" the adjacent 50 feet of land identified in California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP) land use data. The result provides an estimate of the amount of irrigated farmland that occurs within 50 feet of a stream throughout the Central Coast Region.

The FMMP data consists of farmland classifications that include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Prime Farmland and Farmland of Statewide Importance are irrigated lands with good combination of physical and chemical characteristics for the production of agricultural crops. Unique Farmland has lesser quality soils and is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Generally for land to be included in these categories it must have been cropped at some time during the four years prior to the mapping date.

Water Board staff excluded Farmland of Local Importance from the analysis, since these are designated by counties and are generally non-irrigated lands. Specific criteria used by the counties to classify these farmlands support their exclusion from the analysis (Table 11).

Table 11: **County Farmland Designations Not Included in Buffer Analysis**

County	Designation Criteria for Farmland of Local Importance
Monterey	The Board of Supervisors determined that there will be no Farmland of Local Importance for Monterey County.
San Benito	Land cultivated as dry cropland. Usual crops are wheat, barley, oats, safflower, and grain hay. Also, orchards affected by boron.
San Luis Obispo	Farmland of Local Importance: areas of soils that meet all the characteristics of Prime or Statewide, with the exception of irrigation. Local Potential: lands having the potential for farmland, which have Prime or Statewide characteristics and are not cultivated.
Santa Barbara	All dryland farming areas and permanent pasture (if the soils were not eligible for either Prime or Statewide).
Santa Clara	Small orchards and vineyards primarily in the foothill areas. Also land cultivated as dry cropland for grains and hay.
Santa Cruz	Soils used for Christmas tree farms and nurseries, and that do not meet the definition for Prime, Statewide, or Unique.

Source: "Farmland of Local Importance" http://www.conservation.ca.gov/dlrp/fmmp/Documents/Local_definitions_00.pdf

Table 12 presents the results of the spatial analysis to quantify farmland within 50 feet of a stream. Based on this analysis, Monterey County has approximately 877 acres and the entire Region has approximately 2,373 acres of irrigated farmland within 50 feet of a stream. The majority of this land is classified by the FMMP as prime farmland.

Table 12: Estimated Farmland Within 50 feet of a Waterbody

COUNTY	FARMLAND TYPE	Acres within 50-ft of Stream
		Total
Santa Cruz	Prime Farmland	140
	Farmland of Statewide Importance	2
	Unique Farmland	25
		166
San Luis Obispo	Prime Farmland	292
	Farmland of Statewide Importance	57
	Unique Farmland	158
		507
Monterey	Prime Farmland	550
	Farmland of Statewide Importance	92
	Unique Farmland	235
		877
Santa Barbara	Prime Farmland	181
	Farmland of Statewide Importance	40
	Unique Farmland	111
		332
San Benito	Prime Farmland	73
	Farmland of Statewide Importance	37
	Unique Farmland	155
		265

Santa Clara	Prime Farmland	113
	Farmland of Statewide Importance	26
	Unique Farmland	85
		224
San Mateo	Unique Farmland	1
	TOTAL	**2,373**

Within one year of the adoption of the Order or enrollment, Tier 2 and Tier 3 dischargers that have operations that contain or are adjacent to a waterbody impaired for temperature or turbidity must conduct photo monitoring to document the condition of perennial, intermittent or ephemeral streams (wet or dry), riparian or wetland area habitat, and associated management practices implemented to prevent waste discharge and protect water quality. Photo monitoring must be repeated every three years.

Water Board staff estimated that large (greater than 1,000 acres) operations on temperature or turbidity impaired waterbodies had approximately 234 acres within 50 feet of the waterbodies (see analysis of habitat buffer costs). This is close to ten percent of the total acreage of riparian farmland. Absent information on which Tier an operation will be in, Water Board staff took the median of the two acreage figures as a conservatively high estimate of the total number of acres subject to the Draft Order requirement that Tier 2 and Tier 3 dischargers in operations on waterbodies impaired for temperature or turbidity must conduct photo monitoring.

Total farm acres within 50 feet of a waterbody	*2,373*
Total farm acres within 50 feet of a waterbody in large operations on temperature and turbidity impaired waterbodies	*234*
MEDIAN	*1,304*

Using the median of 1,304 acres, staff then calculated the linear distance of riparian farmland to be 1,135,460 feet. Assuming one photo point every 600 feet of linear stream buffer length, a total of 1,893 photo points would be established on farm areas subject to this Draft Order requirement.

Based on a median operation size of 20 acres, approximately 65 operations would be affected by this requirement. Each operation could incur approximately $155 in one-time costs for a camera ($140), compass ($10), farm map ($3), and notebook ($2). Assuming a cost of $27 per photo point ($2.00 to copy photos and $25/hour/photopoint), and two photo monitoring events for the 5-year term of the Order, Water Board staff estimates the total cost of complying with this monitoring requirement to be approximately $112,280 (Table 13).

Table 13: Cost Calculation for Photo Monitoring Requirement

Acres	Square Feet = (ac) x (43,560 sq ft/ac)	Stream Length = Sq ft/50 ft width	1 Photo Point/600 ft	Per Point Cost ($54)	One-time Cost ($155)	Total
1,304	56,780,460	1,135,609	1,893	$102,205	$10,075	$112,280

2.3 Cost to Water Board for Program Administration

The cost for the Central Coast Water Board to implement the Agricultural Regulatory Program is incurred primarily to pay for employees' time conducting program activities. Water Board staff in the program generally evaluates compliance and progress by reviewing water quality data, evaluating chemical use, inspecting farms and ranches, conducting outreach and taking enforcement actions.

With the current staffing and budget, staff cannot review information from, nor inspect, most of the operations in the region. Staff prioritizes efforts in watersheds and areas with most severe water quality problems, and focuses on individual farms or ranches that are or may be discharging in violation of water quality laws to determine the amount of outreach and enforcement.

With the Draft Order, Water Board staff plans to implement at the same level of resources but expects to gain efficiencies in encouraging and tracking progress and responding with enforcement as needed. Staff will be able to prioritize more effectively by relying on both watershed-scale water quality data and refined and increased reporting. The Draft Order requires basic information from all operations that better indicates water quality threats (such as pesticide use and proximity of applications to waterbodies). Additional reporting information will vary for different tiers of operations based on an operation's threat to water quality and proximity to impaired waterbodies. The highest threat tiers must submit the most information and the lowest threat tiers must submit more limited information. Additionally, staff plans to rely on new and enhanced databases to collect and manage data and information so that the increased volume of information and data can be reviewed, organized and analyzed more efficiently. Staff estimates the cost of program implementation based on the annual cost of each staff position and the numbers of staff positions needed to be approximately $882,375 (Table 14).

Table 14: Water Board Staff Annual Cost to Administer Program[5]

Classification	Cost/position	Positions	Total Cost
Environmental Scientist	$123,360	2.5	**$308,400**
Senior Environmental Scientist	$142,080	0.2	**$28,416**
Environmental Program Manager	$163,620	0.4	**$65,449**
Engineering Geologist	$181,920	0.5	**$90,960**
Senior Engineering Geologist	$193,644	0.5	**$96,822**
Supervisory Engineering Geologist	$212,592	0.2	**$42,518**
Water Resource Control Engineer	$180,984	1.0	**$180,984**
Supervisory Water Resource Control Engineer	$212,592	0.2	**$42,518**
Office Technician, Typing	$70,500	0.2	**$14,100**
Office Assistant, Typing	$61,044	0.2	**$12,208**
All Positions:			**$882,375**

[5] Costs include total cost to State for all expenditures (salary, benefits, etc.).

3 EFFECTS OF INCREASED COSTS ON FARM AND REGIONAL ECONOMY

3.1 Introduction

California's agricultural industry is characterized by a variety of economic conditions that have permitted its expansive growth over the last century – most notably continued population growth contributing consumers of produce and the ability to market produce to consumers worldwide. Numerous studies describe the favorable economic conditions for the agricultural sector, while others caution that in the future growers will have to be increasingly flexible, adaptive and innovative to survive as they confront water scarcity, pressures of a globalizing agricultural economy, and less favorable government crop price support policies.[6] Water quality regulations are also among the factors challenging the industry to adapt.

In this Technical Memorandum the costs for dischargers to achieve compliance with the Draft Order are considered in terms of expenses for management practice implementation, monitoring, and reporting. These expenses combine with other factors, such as increased energy costs and the challenges described above, to incrementally increase the discharger's cost of production. Examining the impact of any increase in cost of production on viability of a farming enterprise is challenging. The fact is that changes in costs of production are one of many factors affecting viability and the interaction of these factors is highly dynamic through time.

3.2 Strawberries: An Example of Multiple Factors Affecting Farm Economy

The anticipated effects of increased costs of production resulting from a ban on methyl bromide[7] in strawberry cultivation, illustrate how many of these factors can affect outcomes for growers. Strawberries are a particularly high value crop and are not necessarily representative of agriculture throughout the Central Coast. Nevertheless, the research on strawberries is particularly germane to the Central Coast Region where strawberries contribute a substantial amount (more than $1.4 billion farm gate value in 2009) to the region's overall agricultural productivity. The region also accounts for more than 50 percent of total United State's strawberry production.[8] (California contributes approximately 90 percent of the nation's strawberries.[9]) Research on the potential costs of the ban[10] is presented here because it specifically addresses how several of

[6] Vaux, Henry J. Jr., 1996. "Future trends challenge irrigated agriculture." California Agriculture, Volume 51, Number 1. p. 2.

[7] Methyl bromide is a toxic chemical pesticide that depletes the earth's protective ozone layer but which also serves as a soil-sterilizing agent for farmers. Strawberry farmers are among users fearing significant losses and even farm failures without the continued availability of methyl bromide as a fumigant.

[8] Mark Murai, President, California Strawberry Commission. April 1, 2010-Letter to Water Board Chair Jeffry Young for May 12, 2010 Workshop on Preliminary Draft Agricultural Order.

[9] Starrs, Paul F., and Peter Goin, 2010. Field Guide to California Agriculture. U.C. Press.

[10] The Montreal Protocol on Substances that Deplete the Ozone Layer has been the most successful international environmental agreement ever reached (Norman, et al, 2005). While methyl bromide is

the factors that influence the viability of producing any agricultural commodity in the Central Coast interact, including: cost of environmental compliance; costs of production; characteristics of price response in the market; and the effects of globalization (as manifested in competition from Mexican growers).

Researchers[11] found that estimates of economic loss attributable to the new regulation banning methyl bromide "incorporate losses from lower yields, lower quality fruit, and higher production costs. The high end of the estimate translates to between 20 and 57% of net returns above operating costs for a typical grower... These estimates are alarming to farmers but they do not account for important market effects that will reduce the burden borne by farmers even without any transitional assistance."

In regards to the market response to increased costs of production, the researchers observe that, "A cost increase to producers is reflected in an upward (leftward) shift of the long-term supply curve by an amount equal to the cost increase, as farmers require higher prices to produce any given quantity of strawberries. This interacts with market demand to determine a new price-output equilibrium." The researchers then state that, "demand at every price is increasing, because of income and population growth effects… at a rate estimated at 2.3% annually. [This] effect dominates, suggesting that farmers will not face losses at all but simply a slowing of the rate of increase in the gains that they would have expected in the absence of a cost increase." The current conditions of stagnating income growth are different from 2005 when this research was completed. Nevertheless, the ban on methyl bromide is not implicated in declines in strawberry production.

Finally, with respect to the pressures of globalization and the potential for a competitive advantage by Mexican strawberry growers, these economists state:

> "In the long term, all else held constant, on the margin some increase in imported berries from Mexico can be expected if U.S. prices rise in response to a possible cost increase as methyl bromide is phased out in the U.S. while use is still allowed in Mexico. However, capacity to produce for export in Mexico would have to grow dramatically at a rate without historical precedent for imports to make a serious dent in the U.S. market even then."
>
> "In the last 10 years, Mexican strawberry exports to the U.S. have quadrupled. If they quadruple again in the next 10 years and if the U.S. market does not grow at all…Mexican imports would then be 24% of U.S. consumption. The majority of the market would still be supplied by domestic producers, and given relatively

only one of many substances being phased out under the Protocol, it has so far been the most controversial.

[11] Norman, Catherine S. 2005. *Potential impacts of imposing methyl bromide phaseout on US strawberry growers: a case study of a nomination for a critical use exemption under the Montreal Protocol*. Journal of Environmental Management 75 (2005) 167-176.

inelastic demand, cost increases to U.S. growers would be passed through to consumers to a significant degree."

More recent information on strawberry market conditions from USDA further illustrates the diversity of influences affecting market conditions and, by extension, the ultimate viability of agricultural enterprises. The USDA Economic Research Service May 2010[12] outlook reports:

"Strawberry retail prices experienced the biggest decline in April, falling 10 percent to $1.667 per 12-ounce (oz) pint from the April 2009 price. Retailers were faced with an abundance of strawberries as Florida supplies, while slow to recover from the late-January freeze, soared at the tail end of their shipping season and were competing with early-season supplies from California. Last year the same time, Florida supplies were already winding down. In California, wet and cold weather has interrupted production sporadically this spring but seasonal supply increases are occurring. Production is forecast to be down in California this year, likely putting upward pressure on strawberry prices this summer relative to last."

"A decline in strawberry supplies in the U.S. market this year may be attributed mostly to smaller crops in two of the biggest producing States—California and Florida. The initial forecast from USDA's National Agricultural Statistics Service (NASS) calls for a 7-percent decline in strawberry production in California in 2010 from a year ago, reaching 2.3 billion pounds. A distant second to California, the winter strawberry crop in Florida was forecast down to 144.0 million pounds, declining by 39 percent. Both strawberry harvested acres and the average yield per acre in California are forecast to be reduced compared to last year, driving down production this year. Intermittent rainy weather caused by an El Nino weather pattern disrupted shipments early in the season as field workers had to alternate between picking and stripping the fields. Current projections are for harvested acreage in 2010 to decline 6 percent from 2009, reaching 37,500 acres (fig. 3). NASS also forecast average yields to be down 2 percent this year to 61,500 pounds per acre."

The strawberry example illustrates the relative influence of multiple factors in determining the ultimate economic viability of farming enterprises, and places in context the incremental increased costs of production attributable to environmental compliance. As the USDA outlook report shows, factors such as weather and the timing of production in Florida appear to dominate the near term economic conditions for the fresh market in strawberries.

3.2.1 Price Elasticity

[12] USDA, Economic Research Service, 2010. "Fruit and Tree Nuts Outlook: California's Strawberry and Peach Crops Smaller but Almond Production Up." May 28.

The market for strawberries, like that of most agricultural commodities, is characterized by relatively inelastic demand. One measure of this, *own price elasticity* – a measure that indicates the extent to which consumption is sensitive to price – is calculated as the percentage change in quantity demanded of a good or service divided by the percentage change in its price, other factors remaining unchanged. The higher the price elasticity, the more sensitive consumers are to price changes. Very high price elasticity suggests that when the price of a good goes up, consumers will buy much less of it and when the price goes down, they will buy much more. Very low price elasticity (or, inelasticity) implies just the opposite, that changes in price have little influence on demand. If elasticity is greater than one, demand is said to be elastic; between zero and one demand is inelastic. Realistically, elasticity is best considered in relative terms, since the greater than/less than one boundary is not a bright line, i.e., calculations of elasticity are generally more reliable the farther they are from the number one.

For strawberries, the mean own-price elasticity reported by the United States Department of Agriculture's Economic Research Service is -0.92826.[13] This means that a one percent increase in price would give a 0.92 percent decrease in quantity demanded. Conversely, a one percent decrease in quantity would give a 1.08 percent increase in price. Own price elasticities for lettuce, broccoli, grapes and celery are presented in Table 15. According to these data, among these major regional crops, only grapes and broccoli have relatively elastic demand.

Several factors affect elasticity of demand for a good, including, for example, availability of substitute goods, necessity, and brand loyalty. The primary determinant of agricultural commodity elasticity is likely necessity: the more necessary a good, the lower the elasticity, since consumers will attempt to buy it no matter the price.

[13] USDA Economic Research Service, 2010. Data Sets. "Commodity and Food Elasticities: Demand Elasticities from Literature Results." http://www.ers.usda.gov/Data/Elasticities/ShowTable.aspx?geo=United%20States&com=Strawberry

Table 15: Own Price Elasticity of Several Crops in the Central Coast Region

Crop	Own Price Elasticity[a]						
							Average
Strawberries	0.449	0.438	2.398	1.957	0.2753		0.92826
Lettuce	0.131	0.0139					0.07245
Bagged Lettuce	[b]						0.56023
Broccoli	1.048	1.043					1.0455
Onion	0.11	0.289	0.1964	0.1832			0.19465
Grapes	1.468	2.092	1.378	1.5	1.168	0.9075	1.41892
Celery	0.2516	0.0501					0.15085
Fruit and Vegetable	0.45	0.06986					0.25993
Vegetables	[b]						0.68613

Source: USDA Economic Research Service

a) Expressed in terms of absolute value.

b) Individual elasticities too numerous to list in table (see source).

3.2.1.1 The Significance of Price Elasticity on Total Revenue

When increases in costs of production are passed on to consumers as higher prices, elasticity is important in determining the affect this will have on total revenues for the commodity producer. Due to the fact that most agricultural commodities are characterized by relatively inelastic demand (<1), the following relationship between price elasticity and total revenue holds: the percentage change in quantity demanded is smaller than the percentage change in price. So, when prices go up, total revenue rises, and vice versa. Where the price elasticity of demand is relatively elastic, the percentage change in quantity demanded is greater than the percentage change in price, so total revenue falls.

The relatively inelastic nature of demand for most agricultural products means that consumers share the costs of production by paying higher prices, and that the effect on total revenue of increased costs of production is substantially attenuated.

3.2.2 Effects of Increased Costs on Regional Economy

To further characterize the potential effects of implementing the 2011 Draft Order on the regional economy, Water Board staff evaluated data on Monterey County's agricultural output, employment and income. At $3.7 billion, Monterey County's agricultural production is three times that of Santa Barbara, the county nearest in production; and it is more than all the other Central Coast counties combined (Table 16). Given the County's dominant role in the region with respect to the agricultural sector, and the limitations in obtaining comparable information from the region's other counties, Water Board staff presents the Monterey County data to convey the magnitude of potential effects of the Draft Order region-wide.

Table 16: Central Coast Counties Total Agricultural Production from Crop Reports[14]

County	Production
Monterey	$3,683,754,000
Santa Barbara	$1,027,047,467
San Luis Obispo	$458,783,000
Santa Cruz	$363,888,000
Santa Clara	$247,950,400
San Benito	$187,334,000

A 2004 report completed for the County evaluated output, employment, and income in the agricultural sector based on a popular economic model for which the principal input was total agricultural production.[15] The report put agriculture production in the County at about $2.9 billion, and the model estimated total economic impact to be approximately $5.2 billion (Table 17). The total economic impact included the sum of all direct, indirect, and induced economic activity associated with agricultural production. The indirect industry output is the economic value of the supplier relationships needed to support the production sector. The $5.2 billion figure also includes $788 million of induced output from household spending. The report also cites economic studies that indicate the added economic activity associated with food processing doubles the total economic benefit of the agriculture industry cluster in Monterey County to more than $10 billion.

Table 17: Baseline Economic Agricultural Production, Monterey County 2001

Baseline Monterey County Agriculture	Direct	Indirect	Induced	Total
Industry Output	$2,891,741,245	$1,509,444,557	$788,242,109	$5,189,427,933
Labor Income	$657,575,605	$606,230,491	$301,479,428	$1,565,285,535
Employment (jobs)	26,371	30,434	9,579	66,384

Source: Applied Development Economics, 2004. Table 2-7, p. 30.

The 2004 report examined the economic impact of the then proposed County General Plan. Included among the potential impacts of the General Plan was approximately 12,768 acres of agricultural land conversion to non-agricultural uses. The report assessed the degree to which these land conversions would reduce agricultural production in the County, and examined "the extent to which these direct impacts potentially affect other businesses that have existing buyer-supplier relationships with agricultural businesses or rely on household spending from agricultural workers," (p. 43).

The nearly 12,800 acres of farmland projected for conversion in the General Plan comprised about $131 million of crop production, according to the report (p. 46). The resulting economic impact would total approximately $232 million, or less than five

[14] All figures for 2009 with the exception of San Benito and Santa Clara County for which Water Board staff used 2008 crop reports, since 2009 crop report was unavailable.

[15] Applied Development Economics, 2004. "Monterey County General Plan Update: Economic Impact Analysis." February.

percent of total economic activity generated through agriculture (Table 18). Labor income impacts would be around $68 million, and approximately 3,100 jobs would be lost. These impacts would be expected to play out over the 20-year planning horizon of the General Plan.

Table 18: Economic Impact of General Plan Farmland Conversion, Monterey County 2001

Monterey County Agriculture	Baseline	General Plan Agricultural Acreage Reduction Impacts
Industry Output	$5,189,427,933	$231,637,351
Labor Income	$1,565,285,535	$67,655,440
Employment (jobs)	66,384	-3,126

Source: Applied Development Economics, 2004. Table 2-25, p. 46.

Water Board staff finds the County's 2004 report to be valuable in illustrating the indirect effects of economic impacts to agriculture. The report's reliance on economic modeling that integrates multipliers to estimate these impacts is an appropriate and common practice. Given the significance of Monterey's agricultural economy in the Central Coast region overall (Table 16), the report's findings are generally helpful in characterizing impacts to agricultural productivity that could potentially result from implementation of the Draft Order. As the report states:

> "The significance of the impacts of agricultural conversion can vary from one location within Monterey County to another, because different agricultural commodities have different economic value. Although even worst-case estimates of agricultural acreage conversion totals do not generate impacts that would potentially wipe out any of the crop categories…it is still important to examine the impacts that agricultural land conversions will potentially have…because these land conversions do not only affect farm production. A multitude of support services and local-serving businesses depend on spending from not only the agricultural businesses but their employees and their families as well." (pp. 40-41).

4 SOURCES OF FUNDING FOR IMPLEMENTATION

4.1 Summary of Funding Sources

A number of existing or potential funding sources may be available to offset portions of the cost of implementing the Draft Agricultural Order. These program descriptions were taken from an economic analysis conducted for the Central Valley Regional Water Quality Control Board.[29] Central Coast irrigated agricultural discharges would be subject to the same eligibility criteria and access to these sources of funding. The programs described are illustrative and are not intended to constitute a comprehensive list of funding sources.

4.1.1 Federal Farm Bill

Title II of the 2008 Farm Bill (the Food, Conservation, and Energy Act of 2008, in effect through 2012) authorizes funding for conservation programs such as the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program. Both of these programs provide financial and technical assistance for activities that improve water quality on agricultural lands. For example, the NRCS provides financial and technical assistance to growers to improve water quality.

The assistance is through the Agricultural Water Enhancement Program, an element of the NRCS EQIP. The program is a voluntary conservation initiative in which NRCS develops partnership agreements with eligible growers. Farm bills typically are in place for four to five years. Subsequent farm bills may expand, reduce, eliminate, or replace EQIP. Farm bills or other future legislation may authorize spending for direct grants, loans, or cost-sharing for irrigation practices that improve water quality.

4.1.2 State Water Resources Control Board

The Division of Financial Assistance administers water quality improvement programs for the State Water Board. The programs provide grant and loan funding to reduce non-point-source pollution discharge to surface waters. The Division of Financial Assistance currently administers two programs that improve water quality—the Agricultural Drainage Management Loan Program and the Agricultural Drainage Loan Program. Both of these programs were implemented to address the management of agricultural drainage into surface water. The Agricultural Water Quality Grant Program provides funding to reduce or eliminate the discharge of non-point-source pollution from agricultural lands into surface and groundwater. It is currently funded through bonds authorized by Proposition 84. The State Water Pollution Control State Revolving Fund Program also has funding authorized through Proposition 84. It provides loan funds to a wide variety of point-source and non-point source water quality control activities. The State Water Board also administers Clean Water Act funds that can be used for agricultural water quality improvements.

4.1.3 Safe, Clean, and Reliable Drinking Water Supply Act of 2010

This act was passed by the Legislature as SBX 7-2, and if approved by voters in November of 2010, would provide grant and loan funding for a wide range of water-related activities, including agricultural water quality improvement, watershed protection, and groundwater quality protection. The actual amount and timing of funding availability will depend on its passage, on the issuance of bonds and the release of funds and on the kinds of programs and projects proposed and approved for funding.

4.1.4 Other Funding Programs

Other state and federal funding programs have been available in recent years to address agricultural water quality improvements. Integrated Regional Water Management grants were authorized and funded by Proposition 50 and now by

Proposition 84. These are being administered jointly by the State Water Board and DWR. Proposals can include agricultural water quality improvement projects. The Bureau of Reclamation also can provide assistance and cost-sharing for water conservation projects that help discharges.

4.2 Effect of External Funding on Economic Impacts

The following conclusion from the Central Valley economic study holds for this analysis as well:

> "Funding received from grants, cost-sharing, or low-interest loans would offset some of the local growers' expenditures for compliance and management practice implementation, and likely would reduce the losses in irrigated acreage and value of production described above. Funding that is targeted toward lands, crops, or growers having the greatest potential for losses and economic hardship would be most effective at reducing the impact. Regional economic impacts also would be reduced."

5 COMPREHENSIVE COST CONSIDERATIONS

5.1 Costs of Implementation and Costs of Current Conditions

A comprehensive consideration of costs associated with the Draft Order includes costs of current conditions, without implementation of the Draft Order, and the costs of implementation of the Draft Order. The costs associated with current conditions include, for example, environmental (beneficial use impacts) and public health impacts from contaminated drinking water sources. While these costs may be in part borne by dischargers, they fall principally on the public at-large, with greatest effects felt by the public living in agricultural areas. Though not a formal cost-benefit analysis[16], this Technical Memorandum provides information about costs associated with the Draft Order and identifies sources of financing.

5.2 Full Costs of Agriculture as Currently Practiced

5.2.1 Financial Costs of Production

Environmental regulatory compliance is among the many financial costs borne by growers as primary inputs to production. Other financial costs include: labor, energy, water, equipment, land, agricultural chemicals and seed or nursery stock.

5.2.1.1 Public Sector Funding for Agriculture

[16] A formal cost benefit analysis is not required when issuing waste discharge requirements or a waiver of waste discharge requirements or when complying with CEQA. Benefits to society of agricultural production are nearly immeasurable. However, different forms of agricultural production provide food sources while having different costs and causing different watershed changes.

Federal and State programs supporting conservation practices (e.g., Natural Resources Conservation Service, Environmental Quality Incentives Program (EQIP)), water quality monitoring (Central Coast Water Board funding for cooperative monitoring program), and funding for non-point source pollution control (USEPA CWA Section 319(h)) are examples of agricultural production costs shared by the public sector.

Table 19 presents examples of public funding that supports Central Coast agriculture. These funds contribute to the continued profitability of agriculture by supporting the industry's investments in practices to increase production, while at the same time providing incentive to growers to address environmental impacts, including degraded water quality. In this sense, taxpayers share certain costs of production, including, at times, the costs of environmental protection.

Table 19: Example Public Sector Funding to Agriculture

Funding Type	Amount	Source
Water Board Administered Funding to Agriculture-related Projects, Region-wide	$14.4 Million Total 2005 – 2010	CCRWQCB
Federal EQIP Obligation Amount in Marine Sanctuary Counties	$1.6 - $2.6 Million Per year 2005 – 2009*	USDA[17]

* $18 million in Farm Bill funding was obligated to EQIP contracts in Marine Sanctuary Counties over ten years. Farmers have invested $15 million of their own money in match over the same period.

5.2.1.2 Public Health and Environmental Financial Impacts of Discharges of Waste Associated with Agriculture (Externalities)

Discharges of waste associated with agricultural activities result in impacts on public health and the environment, including impacts related to environmental justice issues. Those impacts result in costs to the public and the environment rather than the discharger of the waste that are not typically considered in evaluating costs.

This Technical Memorandum includes information about some social and environmental costs associated with irrigated agriculture in the Central Coast that Water Board staff would expect to be reduced over time with implementation of the Draft Order.

5.2.2 Social Costs of Current Conditions

Costs to the public associated with discharges of waste from irrigated agriculture in the Central Coast Region can be discussed in three broad categories: Public Health, Environmental Health, and Environmental Justice.

5.2.2.1 Public Health

Thousands of people in the agricultural areas of the Central Coast Region rely on public supply wells and shallow private domestic wells with unsafe levels of nitrate and other

[17] Mountjoy, Daniel, USDA, NRCS. Salinas, CA. October 2009 Presentation on 10-Year Anniversary of Agriculture and Rural Lands Program.

waste constituents. Excessive nitrate concentration in drinking water is a significant public health issue resulting in increased health risk to infants and adults. While acute health effects from excessive nitrate levels in drinking water are primarily limited to infants (methemoglobinemia or "blue baby syndrome"), evidence suggests there may also be adverse health effects among adults as a result of long-term ingestion exposure, and in older individuals who have genetically impaired enzyme systems. These effects include: increased risk of non-Hodgkin's lymphoma, diabetes, Parkinson's disease, Alzheimer's disease, endocrine disruption, and cancer of the organs. One recent study identified a role of drinking water and dietary nitrate in risks of thyroid cancer.[18] Generally, families drawing their water supply from farm areas experience the greatest exposure to elevated nitrate concentrations in drinking water.[19]

Nitrate as nitrogen concentrations of 4 mg/L or more in rural drinking-water supplies have been associated with increased risk of non-Hodgkin's lymphoma. [20] Additionally, researchers from the University of Iowa found that up to 20 percent of ingested nitrate is transformed in the body to nitrite, which can then undergo transformation in the stomach, colon, and bladder to form N-nitroso compounds.[21] These compounds are known to cause cancer in a variety of organs in more than 40 animal species, including higher primates.

In addition to nitrate, exposure to other agricultural chemicals is associated with public health risks. For example a recent study in the Salinas Valley identified effects on neurological development in children exposed to organophosphate pesticides.[22]

Water Board staff has not measured the individual or cumulative costs of these public health consequences. The costs range from the direct costs incurred by individuals and their families in lost wages, medical expenses, and pain and suffering, to the collective costs to communities in declining productivity and wealth. Where public sector agencies expend resources to reduce or prevent these costs (e.g., well-head treatment for drinking water supply wells), the costs are alternately described as "Public Health" and "Environmental Health" expenditures. Environmental Health costs are discussed below.

5.2.2.2 Environmental Health

Environmental Health costs are defined here as costs incurred principally by public agencies and service providers for actions to address environmental quality problems. These costs may, but do not necessarily also benefit public health. For example the public health cost of contaminated water is borne by those individuals suffering from health effects and by the public at large. At the same time, the environmental health

[18] Kilfoy BA, Zhang Y, Park Y, Holford TR, Schatzkin A, Hollenbeck A, Ward MH. 2010. *Dietary nitrate and nitrite and the risk of thyroid cancer in the NIH-AARP diet and health study*. Sept. 7.

[19] R. B. Brinsfield and K. W. Staver, *Addressing groundwater quality in the 1990 farm bill: Nitrate contamination in the Atlantic Coastal Plain*, Journal of Soil and Water Conservation, March 1990, vol 45., no. 2, 285-286.

[20] M.H. Ward, Mark S.D., Cantor K.P., et al., *Drinking Water Nitrate and the Risk of Non-Hodgkin's Lymphoma*, Journal of Epidemiology and Community Health, 1996, Vol. 7, pgs 465-471.

[21] Peter Weyer, *Nitrate in Drinking Water and Human Health*, 2001, http://www.agsafetyandhealthnet.org/Nitrate.PDF

[22] Marks AR, Harley K, Bradman A, Kogut K, Barr DB, Johnson C, et al. 2010. *Organophosphate Pesticide Exposure and Attention in Young Mexican-American Children.* Environmental Health Perspectives.

cost to clean up or prevent the pollution of a water supply falls largely on public agencies and private water vendors who must spread these costs broadly among the populations they serve.

This discussion of environmental health costs is limited to those costs associated with addressing groundwater overdraft/seawater intrusion, and treating nitrate contaminated water supplies from groundwater.

The Draft Order does not require any dischargers of irrigated agricultural runoff to implement treatment or to replace drinking water for public or domestic water supplies affected by agricultural pollutants, nor does it establish any conditions or criteria that would trigger these requirements. Therefore, the following costs are not costs to dischargers if the proposed order is adopted. Rather these costs provide examples and estimates of the current and potential future costs to restore groundwater to public health standards, if pollution continues unabated.

The Draft Order does refer to the *existing* authority pursuant to Water Code §13304 for the Central Coast Water Board to require dischargers to provide alternative water supplies or replacement water service, including wellhead treatment, to affected public water suppliers or private domestic well owners. The Draft Order does not add or invoke this authority, nor establish new requirements. Water Board staff does not speculate here on if or how this authority might become a requirement for an individual agricultural discharger complying with the proposed order and therefore, cannot meaningful estimate cost to an individual discharger.

5.2.2.2.1 Cost of Treating Nitrate in Groundwater

Data from public supply wells in the Central Coast region suggest that the municipal beneficial use of groundwater is impaired or threatened by nitrates in several areas of the Central Coast region's groundwater basins. A Department of Water Resources survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast found that 17 percent of the wells (121 municipal supply wells) detected a constituent exceeding one or more primary MCL.[23] Nitrate exceeded the MCL (45 mg/L nitrate as nitrate) the most, with approximately nine percent of the wells (64 wells) exceeding the MCL for nitrate. Research shows that nitrate concentrations found in groundwater above 14 mg/L (as nitrate) are likely from anthropogenic activity such as agriculture, so concentrations above 45 mg/L indicate a significant anthropogenic impact.[24] According to the State Water Board's GAMA Geotracker website, recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells impacted) and the Santa Maria (approximately 17 percent) groundwater basins. In the Gilroy-Hollister groundwater basin, 11 percent are impacted but the California Department of Health identified more than half of the drinking water supply wells as vulnerable to agricultural related activities.

[23] Department of Water Resources, 2003. *California's Groundwater Update, Central Coast Hydrologic Region.*
[24] W.M. Alley, 1993. Regional Ground-Water Quality. Van Nostrand Reinhold, New York NY

A study of sources of loading of nitrates and salts to the soil and potentially to groundwater in Santa Cruz and Monterey Counties indicated that irrigated agriculture contributes approximately 78 percent of the loading.[25] Less than 50 percent of applied fertilizer-nitrogen is taken up by the crops and of the approximately 50 percent not taken up, approximately 25 percent is lost to the atmosphere due to ammonia volatilization.[26] Based on these proportions, approximately 38 percent or more of applied fertilizer-nitrogen is leached to groundwater.

Due to elevated concentrations of nitrate in groundwater, many public water supply systems have abandoned wells and established new wells or sources of drinking water, or are required to remove nitrate before delivery to the drinking water consumer, often, at significant cost.

Removing nitrates from groundwater is very expensive. There is significant variability in costs to remove nitrate from groundwater depending on whether the goal is to perform groundwater treatment at the wellhead or to achieve groundwater cleanup on a basin-wide scale. The cost estimates that follow were developed by cost modeling using data from existing pump-and-treat cleanup projects within the region, and present-day nitrate treatment and blending costs for groundwater projects throughout the State.

Current strategies for addressing nitrate in groundwater typically include avoidance (abandoning impacted wells or drilling adjacent deeper wells), groundwater treatment to remove nitrate (i.e., dilution using blending, ion exchange, reverse osmosis, biological de-nitrification, and distillation), or developing additional water supplies (i.e., percolation ponds, surface water pipelines, reservoirs) to dilute nitrate-impacted groundwater resources. The costs associated with these strategies vary depending on various factors including, but not limited to: affected population, area impacted by elevated nitrate concentrations, number of replacement wells needed, capacity and depth of replacement wells, concentration of nitrate to be treated, presence of other constituents in groundwater, distance to alternative low nitrate concentration water source, installation of new infrastructure (e.g., treatment system, conveyance pipeline, etc.), equipment costs, and long-term maintenance and operational expenses.

Private parties and municipalities with elevated nitrate concentrations in the wells they own and operate can incur significant costs to treat or lower nitrate concentrations.[27] Some options include:

- Rely on bottled water: Average costs to buy bottled water for a family of four: $190 per year[25]

[25] Monterey County Flood Control and Water Conservation District, November 1990. "Report of the Ad Hoc Salinas Valley Nitrate Advisory Committee." Zidar, Snow, and Mills.

[26] Harter, Thomas, 2009. *Agricultural Impacts on Groundwater Nitrate,* in Southwest Hydrology, July/August.

[27] A.M. Lewandowski, B.R. Montgomery, C.J. Rosen, and J.F. Moncrief, *Groundwater nitrate contamination costs: A survey of private well owners*, Journal of Soil and Water Conservation, May 2008, vol. 63, no. 3, 153-161.

- Remove nitrate at sink: Average cost to buy a nitrate removal system (under the sink-type reverse osmosis system): $800 plus $100 per year for maintenance[25]
- Wellhead treatment:
  - Average cost to operate an ion exchange system for wellhead treatment on a private well (for a 15 gallons per minute well): $25,000 capital costs plus $37,000/year on operation and maintenance costs.[28]
  - Average cost to operate an ion exchange system for wellhead treatment on a municipal supply well (for a 1,000 gpm well): $200,000 plus operating and maintenance costs.
- Replace well:
  - Average cost to install a new replacement shallow private domestic supply well: $7,200.[25]
  - Average cost to install a municipal water supply well (see Table 20).

According to data prepared for the Central Valley Water Board, well replacement costs depend on the geology of the water supply area, well design and depth, well construction, pumping rate and wellhead protection. Table 20 presents a range of well replacement costs. Based on these costs the estimated total costs for well replacement and one year of operation and maintenance range from $76,500 to $1.085 million.[29]

Table 20: Well Replacement Costs

Well Size	**General Cost Assumptions**
10 to 30 gal/min (gpm)	$25,000 to $50,000 ($37,500 average)
30 to 100 gpm	$100,000
1,000 gpm to 2,000 gpm	Can he as high as $1 Million
Items	**Cost Ranges**
Labor per person	$30,000 to $60,000 per year
Power for <100 gpm size	$3,000 to $5,000 (average $4,000)
Administration/fees	$2,000 per year
Analytical Costs – Groundwater	$2,000 per year with no treatment or compliance issues
Maintenance – Groundwater	$1,000 per year if done by operator

Note: Actual costs should be verified by local drilling company

[28] Stephany Burge and Rolf Halden, *Nitrate and perchlorate Removal from Groundwater by Ion Exchange Pilot Testing and Cost Analysis*, Lawrence Livermore National Laboratory, University of California, Livermore, California, September 8, 1999.

[29] Central Valley Regional Water Quality Control Board (CVRWQCB). July 2010. *Draft Technical Memorandum Concerning the Economic Analysis of the Irrigated Lands Regulatory Program.* Prepared by: Megan Smith, ICF International; with assistance from: Mark Roberson, Ph.D., Stephen Hatchett, Ph.D., CH2MHill, and Thomas Wegge, TCW Economics.

Source: CVRWQCB, 2010, p. 5-4, 5-5.

An example of well replacement costs in the Central Coast Region is provided by the Monterey County community of San Jerardo. At the October 23, 2009 Central Coast Water Board hearing,[30] the Board approved a resolution requesting $543,826 of Cleanup and Abatement Account funding to assist San Jerardo in financing alternative water supply and interim nitrate treatment. This small rural community (approximately 60 households) located in an agricultural area southeast of Salinas has high levels of nitrate and 1,2,3-Trichloropropane (1,2,3-TCP) in groundwater. The community, whose water system has been under a bottled water order for drinking water since 2001, requested the funds in October 2009 to continue interim treatment of drinking water.[33] Up to that time, Monterey County incurred $615,582 in interim filtration system costs for the San Jerardo water supply, and anticipated an additional $232,400 in expenses through the expected completion date of an approximately $1 million project to permanently replace the water.[31]

When well replacement is not an option, either wellhead treatment (the interim strategy for San Jerardo) or basin wide cleanup (pump and treat) are the typical strategies for reducing nitrate in drinking water supplies. Cleanup strategies rely on source control/removal as the cornerstone component for nearly all groundwater cleanup sites in the Central Coast Region, and the cleanup strategy for nitrate is no different. So, these options are only reasonable if nitrate loading has been addressed through management practices, such as those required in the Draft Order.

To understand the costs associated with nitrate cleanup, Water Board staff selected an example involving the cleanup of a perchlorate (a chemical similar to nitrate) plume within the Llagas Subbasin in Santa Clara County.[32] The extent of the perchlorate plume is approximately 10 miles in length and more than two miles in width. The plume also extends through three underlying aquifer zones, to depths greater than 500 feet. To clean up the perchlorate plume to background concentrations, consultants estimate that capital costs to install a hydraulic containment and treatment system (e.g., wells, piping, pumps, treatment system) with reinjection of treated water is approximately $32 million plus operation and maintenance costs estimated to be $11 million per year for at least 20 years. Over a 20-year timeframe, groundwater cleanup for the perchlorate plume described above will cost more than $250 million dollars.

A nitrate plume of similar magnitude would cost significantly more due to the increased cost of nitrate resin compared to perchlorate resin and due to waste disposal costs (nitrate ion exchange resin waste). The perchlorate plume described above is a small fraction of the size of the nitrate plumes found in most of the major groundwater basins throughout the region. Additionally, the nitrate plumes in the Llagas Subbasin and other

[30] Central Coast Water Board October 23, 2009 Meeting Agenda: http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2009/oct/item_12/index.shtml

[31] Monterey County Board of Supervisors October 27, 2009 Meeting Agenda http://publicagendas.co.monterey.ca.us/MG75707/AS75733/AS75740/AI84201/DO84202/1.DOC

[32] MACTEC Engineering and Consulting, Inc, *Llagas Subbasin Cleanup Feasibility Study – Revised* Olin/Standard Fusee Site, 425 Tennant Avenue, Morgan Hill, California, December 6, 2006

basins are significantly more concentrated than the perchlorate plume described above. Increased concentration would significantly increase treatment cost regardless of treatment method. The Llagas Subbasin is one of many groundwater basins within the region that are severely impaired by discharges of nitrate associated with irrigated agriculture.

Given the extent of nitrate pollution in Central Coast groundwater basins, it would cost many times the costs identified for the Llagas perchlorate plume to cleanup nitrate pollution in the region's groundwater.

5.2.2.2.2 Cost of Groundwater Overdraft and Seawater Intrusion

Groundwater overdraft in a basin is a decrease in groundwater storage that results in a significant prolonged period of groundwater level declines. Along the Central Coast, prolonged periods of groundwater level decline are causing seawater intrusion into aquifers that are hydraulically connected to the Pacific Ocean. Overdraft can also cause upward or downward migration of poor-quality groundwater, loss of surface water flows, and land subsidence with corresponding permanent loss of aquifer storage capacity, as well as infrastructure and property damage (settlement damages sewers, other utilities, buildings, etc.).

Agriculture accounts for approximately 80 to 90 percent of groundwater pumping from the Salinas, Pajaro, and Santa Maria groundwater basins. The Gilroy-Hollister, Salinas, and Santa Maria groundwater basins are actively managed to enhance groundwater recharge from streams in order to meet pumping demand, but excessive pumping (primarily related to agriculture) continues to cause seawater intrusion into the Salinas and Pajaro groundwater basins, with increasing portions of the basins unusable for agriculture and municipal supply as a result.

The Salinas Valley Water Project illustrates the scale of costs associated with addressing seawater intrusion. The three major components of the project include, operation and maintenance of Nacimiento and San Antonio Reservoirs; construction of the modification to the spillway at Nacimiento Reservoir; and construction of the Salinas River Diversion Facility (Table 21). The project will reduce seawater intrusion from Monterey Bay into aquifers underlying the Salinas Valley agricultural region by providing a source of water to replace the use of groundwater. The project includes benefits beyond addressing seawater intrusion, groundwater quality and increased recharge, including: flood control, drought protection, and recreation.

The costs for the project are shared by all land owners with land under active use, including: residential, commercial, industrial, institutional, and irrigated agricultural uses. The project's annual assessment to landowners with land under these active uses is expected to range from $3.99 to $23.93 per acre. [33]

[33] Monterey County Water Resources Agency. *Salinas Valley Water Project Cost Advisory Committee Draft Recommended Strategy*, November 2002, p. 9. http://www.mcwra.co.monterey.ca.us/SVWP/draft_final_CAC_summary.pdf

Table 21: Estimated Costs for Salinas Valley Water Project for Assessed Area[33]

Description	Capital Cost	Annual Cost
Operation and Maintenance of Nacimiento and San Antonio Reservoirs	-	$2,390,000
Construction of Modification to Nacimiento Spillway	$7,300,000	$470,000
Construction of Salinas River Diversion Facility	$11,500,000	$750,000
Maintaining Assessment Rolls		$273,000
TOTAL	**$18,800,000**	**$3,883,000**

In addition to the Salinas Valley Water Project, the Castroville Seawater Intrusion Project began construction in 1995 and started delivering recycled water to fields near Castroville in 1998, leading to reduced pumping of groundwater and slowing of the rate of seawater intrusion. More recently, the Watsonville Recycling Project came online. This project provides the Pajaro Valley Water Management (PVWMA) Agency with 4,000 acre-feet of water to distribute to farmers through the PVWMA's Coastal Distribution System. The combined cost of the Pajaro Water Recycling Project and the Coastal Distribution System is $65 million.[34] Grant funding from state and federal sources in the amount of $28 million[35] were requested to off-set the cost to affected landowners.

The PVWMA also constructed the Harkins Slough Project in 2001, to divert and filter wet-weather flows from Harkins Slough, to a recharge basin. The recharged groundwater is then extracted and delivered during the irrigation season for growers through the Coastal Distribution System. Operation of the Harkins Slough project with other supplemental water projects in the basin, help reduce overdraft and slow the rate of seawater intrusion. [36] The project also offers flood control benefits to Watsonville. Excessive sedimentation now prevents the project from functioning as designed and additional public funds are being requested to improve the project's function and improve management of the Watsonville Sloughs wetlands ecosystem.[37]

While these are only examples of projects whose principal purpose is to address the problems caused by groundwater overdraft, they clearly illustrate that overdraft and associated seawater intrusion are significant problems that require expensive public works and capital projects to address. These examples further illustrate that the costs of these large-scale projects are borne not exclusively by the agricultural industry, which has the primary role in causing overdraft in most of our over drafted basins, but also by the public in the form of individual assessments on property, higher prices for delivered water, and state and federal subsidies.

[34] Eric Anderson, "Water Recycling Project about 95 Percent Complete," Register Pajaronian, October 9, 2008.

[35] Pajaro Valley Water Management Agency, 2010. Web page on Watsonville Area Water Recycling Project: http://www.pvwma.dst.ca.us/project_planning/projects_recycling.shtml

[36] Pajaro Valley Water Management Agency, 2010. Proposition 218 Service Charge Report. March. p. 8.

[37] Regional Water Management Foundation, 2010. *Santa Cruz IRWM Prop 84 Planning Grant Application*, Attachment 3, p. 23.

5.2.2.2.3 Municipal Stormwater Agency Costs

Throughout the Central Coast region, cities and towns have grown alongside a growing agricultural industry resulting in stormwater conveyances that drain both municipal and agricultural lands. Both wet and dry season flows from urban and farm lands commingle in many of these conveyances before discharging to receiving waters. Municipal stormwater discharges are subject to NPDES permits, which require municipalities to address the quality of the discharges from their stormwater drainage facilities to the maximum extent practicable. Where municipal stormwater facilities include non-stormwater tailwater and/or farm stormwater runoff in their discharges, the municipalities are currently under regulatory requirements to implement best management practices to reduce pollutants to the technology-based standard of maximum extent practicable.

Municipal stormwater permits in the Central Coast Region require municipalities to address commingled urban-farm runoff during the current five-year permit cycle. Water Board staff anticipates municipalities will incur costs associated with coordination with growers in and outside of incorporated communities, targeted assessment and monitoring, and capital projects to treat, separate and/or divert flows.

The City of Watsonville incurred such costs when the City constructed a detention system and large trash rack alongside a residential subdivision. The City estimates that approximately 80 percent ($2 million) of the project costs were expended because of agricultural drainage related sedimentation problems caused by a conversion from orchard to strawberry cultivation, upstream, in erosive soils. [38] The City also reports expenditures of approximately $1.4 million to construct cast-in-place culverts and a new pump station at Corralitos Creek to handle additional flow volumes from agricultural areas upstream. [38]

5.2.2.3 Environmental Justice

California statute defines Environmental Justice as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of all environmental laws, regulations, and policies" (Government Code Section 65040.12).[39] Across the nation, poor and minority communities more often suffer from the impacts of exposure to pollution, poor air and water quality and associated health hazards. The impacts of nitrate contamination on disadvantaged communities may in some communities be considered Environmental Justice impacts.

The costs of drilling a new well or paying for water treatment can be infeasible for small, disadvantaged communities, such as San Jerardo, discussed above, and Chualar, a 900-resident economically disadvantaged community just south of Salinas where nitrate

[38] City of Watsonville Public Works, Robert Ketley.

[39] Consistent with legislative mandates, the State Water Resources Control Boards' Environmental Justice Program includes the goal of integrating Environmental Justice considerations into the development, adoption, implementation and enforcement of Board decisions, regulations and policies.

contamination of the water supply was identified in 1996.[40] The impact is also felt among poor and minority communities in cities such as Salinas, Watsonville, King City and Soledad, where ratepayers pay higher prices for water treatment compared to communities relying on uncontaminated groundwater.

Impacts on Environmental Justice are a social cost of irrigated agriculture as it is practiced under current water quality regulations in the Central Coast Region. While the monetary costs of addressing contaminated drinking water are quantifiable, as described in the Environmental Health examples above, Environmental Justice represents a social value whose loss comes at incalculable costs. Should implementation of the Draft Order result in reduced incidence of drinking water contamination in disadvantaged and minority communities, these social costs would be reduced.

5.2.3 Environmental Cost of Current Conditions

5.2.3.1 Watershed Health

The Draft Order addresses the effects of irrigated agriculture on water quality. Irrigated agriculture has the potential to alter the various processes governing surface water, groundwater, sediment, and aquatic habitat, which play out at the watershed scale. The Draft Order is intended to ensure protection of water quality, beneficial uses, and the biological and physical integrity of watersheds and aquatic habitat.

The costs of failing to provide this protection are manifest in many ways that have been described in detail elsewhere. Where these costs are translated into monetary quantities, such as when dollars are expended to address seawater intrusion caused by over-pumping, or, to reduce flooding impacts exacerbated by loss of flood storage, they can be construed as costs to the public. Where the dollar value of these costs is not known or has not been estimated, they represent agriculture's unquantified cost to watershed health.

5.2.3.1.1 Land Productivity

The effect of irrigated agriculture on land productivity is difficult to quantify, but information is provided in this Technical Memorandum to be considered when reviewing costs potentially affected by the Draft Order. Declining productivity of agricultural land can eventually lead to an exhausted resource. The long-term productivity and profitability of irrigated agriculture is determined largely by factors such as prices for crops, labor supply, markets, accessibility, and land tenure. But it also depends on practices that maintain and conserve the native land's characteristics contributing to long-term productivity.

Soil loss, soil salinization, seawater intrusion, land subsidence, and contamination by agricultural chemicals are examples of consequences of unsustainable agricultural practices that can result in potentially lasting negative effects on land productivity.

[40] Monterey County Water Resources Agency, May 2006. *Salinas Valley Integrated Regional Water Management Functionally Equivalent Plan Summary Document Update*. P. 14-3.

Central Coast irrigated agriculture has witnessed some of these effects, most notably seawater intrusion, and the prospect of further declines in productivity exists. Critically, declining productivity from greater intensity of cultivation can result in increased dependence on synthetic nutrients, increasing the risk that applied chemicals will reach surface waters and groundwater in concentrations above protective levels.

5.3 The Triple Bottom Line

The above discussion of financial, social, and environmental costs associated with irrigated agriculture addresses the broad spectrum of effects that could potentially result from implementation of the Draft Order. This framing of the consideration of costs is consistent with what has been termed the "triple bottom line," which attempts to describe the social and environmental impact of an organization's actions to provide a more in-depth evaluation to its economic effects (Presidio Graduate School, 2010).

In considering the costs for the agricultural industry to comply with water quality regulations, the triple bottom line is a useful concept, since these costs are not accurately viewed in isolation from the other social and environmental costs such as those discussed here. The industry's characteristic externalities, which transfer costs to the public-at-large (e.g., groundwater cleanup costs), and the public's share of the cost of production in the form of public subsidies (e.g., federal funding from Environmental Quality Incentives Program) are examples of what is revealed by a more comprehensive analysis of cost.

ATTACHMENT 1:

TABLES SUPPORTING MONITORING COST DISCUSSION

TABLE: RECEIVING WATER MONITORING COST BASIS															
	Laboratory Costs ($)								Receiving Water Monitoring						
	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Routine site visit	Test Avg.	No. of Trend	No. of Storm water	No. of Dry Season	QA Sites	No. of Sites	Annual ($)	5-Year Cost ($)
Field Visit (including flow and field measures)							400		12	2			45	252,000	1,260,000
Total Nitrogen		60	60	20				47							
Nitrate+Nitrite		25	30	20				25	12	2		2	45	16,538	82,688
Total Ammonia	35	35	30	20				30	12	2		2	45	19,845	99,225
Orthophos	see NO	25	60	20				35	12	2		2	45	23,153	115,763
Kjehldahl Nitrogen		26	30	30				29	12	2		2	45	18,963	94,815
Total Phosphorus		16	18	20				18	12	2		2	45	11,907	59,535
Total Organic Carbon		12	30	40				27	12	2		2	45	18,081	90,405
Hardness		13	10	20				14	12	2		2	45	9,482	47,408
TDS	35	15	25	12				17	12	2		2	45	11,466	57,330
Color		15	10	15				13							
Chlor a	71	60	75	50				64	12	2		2	45	42,336	211,680
pH		5	5	10				7	12	2		2	45	4,410	22,050
Conductivity		5	5	10				7	12	2		2	45	4,410	22,050
Turbidity		8	5	12				8	12	2		0	45	5,250	26,250
Total and fecal		30	10	30				23	4	2		0	45	6,300	31,500
E. coli		25	10	30				22	4	2		0	45	5,850	29,250
Toxicity															
Ceriodaphnia	750	733	650	375	735			649		2	2	0	45	116,760	583,800
Selenastrum	750	733	650	650	735			704		2	2	0	45	126,660	633,300
Pimephales	775	733	250	375	735			574		2	2	0	45	103,260	516,300
Hyallela in sed		1000			1040			1020			1	0	45	45,900	229,500
Pyrethroid suite		350				395		373			1	0	45		16,763
Organochlorine in sed		130	225	125				160			1	0	45		7,200
Particle size		15	50	75				47			1	0	45		2,100
OP suite	561	175	225	100		190		250		2	2	0	45		45,036
Nitrogen Pesticides (includes atrazine, cyanazine, simazine)		210		190				200		2	2	0	45		36,000
Carbamates (includes diuron, glyphosate, linuron)		160		265				213		2	2	0	45		38,250
Metals															
Boron		5	7	10				7		2	2	0	45		1,320
Cadmium		6	10	30				15		2	2	0	45		2,760
Copper		6	10	30				15		2	2	0	45		2,760
Lead		6	10	30				15		2	2	0	45		2,760
Nickel		6	10	30				15		2	2	0	45		2,760
Molybdenum		6	10	10				9		2	2	0	45		1,560
Selenium		6	10	30				15		2	2	0	45		2,760
Zinc		6	10	30				15		2	2	0	45		2,760
Phenol		40						40		2	2	0	45		7,200
Paraquat dichloride				75				75		2	2	0	45		13,500
Bioassessment	750							750			1		45	33,750	33,750
TIE Water	4250				6000			5125			5			25,625	128,125
TIE Sediment	4250				6000			5125			5			25,625	128,125
Subtotals														**927,570**	**4,688,336**
5-Year Cost															**4,688,336**
Average Annual Cost															**937,667**

TABLE: GROUNDWATER MONITORING COST ESTIMATE										
				Tier 1 and 2			Tier 3			
	Cost/visit ($)	Add'l Well Cost ($)	Analysis Cost ($)	No. of wells	No. of Samples	5- yr cost ($)	No. of wells	Frequency First Year	Frequency other 4 years	5-year cost ($)
Field Visit (including depth and field measures)	300	150		1	2	$600	2	4	1	$3,600
Mineral Suite (GAMA)			**95**	1	2	$190	2	4	1	$760
Cost/grower/5 Yr						$790				$4,360
No.of Growers						1,600				100
						$1,264,000				$436,000
TOTAL 5-YR PROGRAM COST ALL TIERS										**$1,700,000**