

INITIAL DRAFT PROPOSALS

LONG-TERM IRRIGATED LANDS REGULATORY PROGRAM ALTERNATIVES

PREPARED FOR:

Long-Term Irrigated Lands Regulatory Program
Stakeholder Advisory Workgroup

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Contents

	Page
Initial Draft Proposals Long-Term Irrigated Lands Regulatory Program Alternatives	1
Introduction	1
Goals and Objectives of the Long-Term Irrigated Lands Regulatory Program	2
Alternatives Development and Screening	3
CEQA Requirements	3
Stakeholder Process	3
Alternatives Development Process	4
Alternatives Screening	4
Alternatives	5
Alternative SW/GW 1—No Change Alternative (Maintain Current Program)	6
Alternative SW 2—Water Quality Management Measures	9
Alternative SW 3—Individual Water Quality Management Plan	11
Alternative SW/GW 4(a)—Direct Oversight	13
Alternative SW/GW 4(b)—Direct Oversight	15
Alternative GW 2—Local Groundwater Management Plans	17
Alternative GW 3(a)—Tiered Threat-Based Groundwater Protection Program	18
Alternative GW 3(b)—Tiered Groundwater Program	23
 Attachment A Area or Watershed Management Practice Plans	 1

Table

	On Page
Table 1	Summary of Proposed ILRP Alternatives 6

Acronyms and Abbreviations

Basin Plan	Water Quality Control Plan
Central Valley Water Board	California Regional Water Quality Control Board, Central Valley Region
CEQA	California Environmental Quality Act
Conditional Waiver	Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands
DPR	California Department of Pesticide Regulation
EIR	Environmental Impact Report
FREP	Fertilizer Research and Education Program
GW	groundwater categories
ILRP	Irrigated Lands Regulatory Program
IWMP	Irrigation Water Management Plan
JPA	joint powers authority
MOU	Memorandum of Understanding
NMP	Nutrient Management Plan
NRCS	National Resources Conservation Service
PRC	Public Resources Code
RCD	Resource Conservation Districts
SW	surface water categories
UC	University of California
WDRs	waste discharge requirements
Workgroup	Long-Term Irrigated Lands Regulatory Program Stakeholder Advisory Workgroup
WQMP	Water Quality Management Plan

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Initial Draft Proposals Long-Term Irrigated Lands Regulatory Program Alternatives May 2009

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Introduction

6 The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water
7 Board) Irrigated Lands Regulatory Program (ILRP) was initiated in 2003 with the adoption of a
8 Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands
9 (Conditional Waiver). Under the 2003 Conditional Waiver, the Central Valley Water Board directed
10 staff to prepare an Environmental Impact Report (EIR) for a long-term ILRP. The 2003 Conditional
11 Waiver expired in 2006 at which time a Revised Conditional Waiver was adopted that continues the
12 Conditional Waiver until June 2011.

13 The Central Valley Water Board must develop recommendations for a long-term ILRP by summer
14 2009 in order to have enough time to complete the necessary California Environmental Quality Act
15 (CEQA) and economic review prior to the expiration of the interim program in June 2011. Proposed
16 modifications to the ILRP must be approved by the Central Valley Water Board and may include:

- 17
- 18 • Establishing subcategories and related requirements for different types of agricultural
operations and/or geographic areas.
 - 19 • Adding requirements to protect groundwater from potential impacts related to irrigated
20 agriculture.
 - 21 • Considering various regulatory approaches, such as use of management practice requirements,
22 technology performance standards, narrative or numeric water quality-based limits, or a
23 combination of approaches.

24 This draft proposal provides a summary of 1) the overall goals of the Central Valley Water Board's
25 ILRP, 2) the process that was used to develop the proposed alternatives in collaboration with
26 stakeholders, and 3) the range of draft ILRP alternatives that were developed by the Long-Term
27 ILRP Stakeholder Advisory Workgroup (Workgroup) and Central Valley Water Board staff. All
28 alternatives must be consistent with program goals and meet minimum statutory requirements. To
29 this end, each alternative advanced for evaluation in the EIR will be reviewed by Central Valley
30 Water Board staff and may be subject to modifications. However, any such modifications will only be
31 done after discussion with Workgroup members. During the course of reviewing the alternatives,
32 Central Valley Water Board staff may identify other feasible alternatives that are more cost effective;
33 are less likely to have a negative impact on the environment; or have other desirable characteristics.
34 If such alternatives are developed by staff, those alternatives will be discussed with the Workgroup
35 prior to their inclusion for evaluation in the EIR.

Goals and Objectives of the Long-Term Irrigated Lands Regulatory Program

Irrigated agricultural lands include lands where water is applied to produce crops for commercial sale or use. For the purposes of this ILRP, irrigated agricultural lands also include managed wetlands, nurseries, and irrigation districts. Understanding that irrigated agriculture in the Central Valley provides valuable food and fiber products to communities worldwide, the overall goals of the ILRP are to 1) restore and maintain the highest feasible quality of state waters¹, 2) minimize waste discharge from irrigated agricultural lands² to state waters, and 3) maintain the economic viability of agriculture in California’s Central Valley. In accordance with those goals, the objectives of the ILRP are to:

- Maintain beneficial uses established in [Central Valley Water Board Water Quality Control Plans](#) by ensuring that all state waters meet applicable water quality objectives.
- Increase the effectiveness of water quality management measures implemented at the farm and watershed level in order to achieve applicable water quality objectives.
- Implement management practices that improve water quality in keeping with the first objective without jeopardizing the economic viability for all sizes of irrigated agricultural operations in the Central Valley.
- Provide incentives for agricultural operations to minimize waste discharge to state waters from their operations.
- Where third-party³ groups would be working with the Central Valley Water Board on behalf of irrigated lands owners (growers) for program compliance, minimum structural and organizational requirements need to be instituted that: 1) ensure that the roles and responsibilities of growers and the entity(ies) comprised of the third-party group are clearly described, 2) ensure revenue and expenditures for the third-party group are transparent and have appropriate fiscal oversight mechanisms , and 3) ensure participants are made aware of Central Valley Water Board requirements and the third-party groups compliance with program requirements.
- Coordinate with other Central Valley Water Board programs, such as the Grasslands Bypass waste discharge requirements for agricultural lands and the Westlands Water District effort to develop waste discharge requirements for agricultural lands, total maximum daily load development, and central valley salts.
- Promote coordination with other regulatory programs affecting agricultural operations (e.g., California Department of Pesticide Regulation, California Air Resources Control Board) to minimize duplicative regulatory oversight while ensuring program effectiveness.

¹ California Water Code section 13050 defines State waters as any surface water or groundwater, including saline waters, within the boundaries of the State.

² Irrigated agricultural lands include managed wetlands, nurseries, and irrigation districts.

³ In a third-party structure, a number of growers are represented by a single entity. The third-party acts as a conduit between the Central Valley Water Board and the growers, but growers bear ultimate responsibility for compliance with program requirements.

1 Alternatives Development and Screening

2 CEQA Requirements

3 In accordance with State CEQA Guidelines Section 15126.6(a), EIRs must evaluate a “range of
4 reasonable alternatives to the project, or to the location of the project, which would feasibly attain
5 most of the basic objectives of the project.” State CEQA Guidelines Section 21061.1 defines *feasible*
6 as “capable of being accomplished in a successful manner within a reasonable period of time, taking
7 into account economic, environmental, legal, social, and technological factors.” The final decision
8 regarding the feasibility of alternatives lies with the decision maker for a given project who must
9 make the necessary findings addressing the potential feasibility of reducing the severity of
10 significant environmental effects (Public Resources Code [PRC] 21081, State CEQA Guidelines
11 Section 15091).

12 CEQA Guidelines Section 15126.6(b) provides that the discussion of alternatives should focus on
13 alternatives “which are capable of avoiding or substantially lessening any significant effects of the
14 project, even if these alternatives could impede to some degree the attainment of the project
15 objectives or would be more costly.” Pursuant to CEQA Guidelines section 15126.6(d), an EIR “shall
16 include sufficient information about each alternative to allow meaningful evaluation, analysis, and
17 comparison with the proposed project.” However, CEQA further directs that “the significant effects
18 of the alternative shall be discussed, but in less detail than the significant effects of the project as
19 proposed.” The factors relevant to the ILRP that should be taken into account when addressing the
20 feasibility of alternatives include economic viability, consistency with existing plans or planning
21 documents, regulatory limitations, and jurisdictional authority.

22 Stakeholder Process

23 In fall 2008, the Central Valley Water Board convened the Long-Term Irrigated Lands Regulatory
24 Program Stakeholder Advisory Workgroup (Workgroup) to provide staff with input on the
25 development of the ILRP. The Workgroup includes a range of stakeholder interests representing
26 local government, industry, agricultural, and environmental coalitions throughout the Central
27 Valley.

28 The Workgroup operates under a [Charter](#) document that contains a plan for communicating
29 Workgroup recommendations to the Central Valley Water Board, establishes the Workgroup
30 structure, and clarifies roles and responsibilities. Workgroup meetings conducted to date are
31 summarized here.

- 32 • October 9, 2008—Organizational Workgroup Meeting.
- 33 • December 17, 2008—Workgroup Meeting to Discuss Strategy.
- 34 • February 2, 2009—Groundwater Information Session.
- 35 • February 17, 2009—Workgroup Meeting to Present Participant Proposed Alternatives.
- 36 • April 15, 2009—Groundwater Nitrate Information Session.

37 The Workgroup meetings provide a forum for stakeholder input and deliberation. Because the ILRP
38 is complex, information sessions were arranged to share technical information.

1 Alternatives Development Process

2 Alternatives that will be evaluated in the EIR need to meet the goals and objectives for the ILRP and
3 be substantially different so that the alternatives can be compared to each other. Initially, Central
4 Valley Water Board staff proposed a two-phase process for developing alternatives:

- 5 • **Phase I**—Develop a comprehensive list of alternatives and prioritize the alternatives using an
6 evaluation measures-based (e.g., effectiveness, cost) quantitative scoring system. The goal of the
7 Phase I step was to develop a comprehensive list of alternatives that could meet the goals and
8 objectives for the ILRP for further Workgroup consideration.
- 9 • **Phase II**—Collaboratively screen the comprehensive list of alternatives to determine which
10 alternatives would be evaluated in the EIR for the ILRP.

11 At the December 17 Workgroup meeting, the Workgroup decided to refine the approach for
12 evaluating alternatives by combining the two phases into a shortened process. It was decided that
13 the Workgroup and Central Valley Water Board staff would develop a range of alternatives that
14 could meet the objectives of the ILRP, and sort through those alternatives as they were being
15 developed. Ultimately, the Workgroup will provide input to assist the Central Valley Water Board in
16 determining the alternatives to be evaluated in the EIR.

17 Central Valley Water Board staff developed a template and program matrix to assist Workgroup
18 participants in the development of alternatives. The template and matrix were included in a
19 [Workgroup Strategy Document](#) dated January 9, 2009. The Workgroup Strategy Document included
20 a discussion of minimum requirements for alternatives, a Workgroup meeting schedule, and a
21 process for selecting ILRP alternatives for EIR analysis.

- 22 • On February 17, 2009, Workgroup participants presented proposed ILRP alternatives.

23 After the February 17 Workgroup meeting Central Valley Water Board staff began working with
24 Workgroup participants that proposed alternatives to develop the details of their alternatives.
25 Central Valley Water Board staff have also developed additional alternatives as necessary to
26 represent a range of possible programs to evaluate in the EIR (per CEQA Guidelines requirements).
27 Many of the proposed alternatives that were presented were combined or additional features added
28 to develop complete alternatives that could meet the goals and objectives of the program.

29 Alternatives Screening

30 In order to be considered alternatives under CEQA, ILRP alternatives must meet the goals and
31 objectives of the project (as defined above). At a minimum, alternatives must also meet statutory
32 requirements established in applicable state policy and regulations (e.g., [California Water Code](#);
33 [Central Valley Water Board Water Quality Control Plan](#), or *Basin Plan*; [State Water Resources](#)
34 [Control Board Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control](#)
35 [Program](#); [State Antidegradation Policy](#)). Alternatives that do not meet minimum statutory
36 requirements will not be considered for inclusion in the ILRP.

37 An effort has been made throughout the development process to ensure that the alternatives meet
38 statutory requirements as well as the goals and objectives for the program. This effort included
39 circulating an alternative development template (included in the Workgroup Strategy Document)
40 and Central Valley Water Board staff conducted meetings with Workgroup participants.

1 The ILRP will be selected from among the alternatives considered in the EIR. Rather than the typical
2 EIR approach of starting with a project and then looking at alternatives to that project, the EIR will
3 be used as a tool to inform decision makers during the selection process.

4 In addition to the aforementioned requirements for alternatives, the Workgroup Strategy Document
5 includes the following guidance for determining which alternatives will be evaluated in the EIR.

- 6 • **Consensus alternatives.** All ILRP alternatives that receive Workgroup consensus (as defined in
7 section 3.7 of the [Workgroup Charter](#)) for further consideration will be evaluated in the EIR.
- 8 • **Non-consensus alternatives.** Central Valley Water Board staff will make an effort to include
9 non-consensus ILRP alternatives that are feasible and reasonable in the EIR analysis.

10 As required under CEQA Guidelines section 15126.6(c), the EIR will also briefly describe those
11 alternatives that were considered but rejected as infeasible. The reasons for their infeasibility will
12 be summarized in the EIR.

13 Alternatives

14 The following alternatives, summarized in Table 1, will be further refined by the Workgroup into a
15 range of alternatives to be evaluated in the EIR. The purpose of this screening process is to
16 succinctly describe a reasonable range of alternatives. Currently, the alternatives are divided into
17 surface water categories, designated with an SW; and groundwater categories, designated with a
18 GW. Two alternatives pertain to both surface and groundwater and are designated with an SW/GW.
19 Ultimately, the surface water and groundwater alternatives will be combined so that each
20 alternative being analyzed in the EIR has a groundwater and surface water component.

21 Ideally, the Workgroup will come to consensus on the alternatives that will be advanced for further
22 consideration in the EIR. Where Workgroup consensus is not attainable, Central Valley Water Board
23 staff will select the range of alternatives. In this evaluation, staff will consider 1) how effectively the
24 alternatives would implement overall ILRP goals and objectives, and 2) Workgroup
25 recommendations and comments.

1 **Table 1. Summary of Proposed ILRP Alternatives**

Alternative	Type^a	Lead Entity^b	WQ Plans^c	Monitoring	Implementation Mechanism^d
No Change SW/GW 1	SW	Third Party	To address water quality problems ^e	Watershed	Waiver
Water Quality Management Measures SW 2	SW	Third Party	Yes, watershed	Watershed	Waiver
Individual WQMP SW 3	SW	CVWB	Yes, farm	Farm	Waiver
Direct Oversight SW/GW 4(a)	SW/GW	CVWB ^f	Yes, farm	Watershed	Waiver
Direct Oversight SW/GW 4(b)	SW/GW	CVWB	Yes, farm	Farm	WDRs
Local Groundwater Management Plans GW 2	GW	CVWB	Yes, basin	Regional	Basin Plan Amendment
Tiered Threat-based Groundwater Protection Program GW 3(a)	GW	Third Party	Yes, farm	Regional	Waiver/WDRs
Tiered Groundwater Program GW 3(b)	GW	JPA ^g /CVWB	Yes, farm	Farm/Regional	Waiver/WDRs

- 2 ^a Program type: surface water (SW); groundwater (GW); or ground and surface water (SW/GW).
3 ^b Describes Central Valley Water Board interaction with growers. For more information on lead entity see
4 Attachment II, page 3, of the Workgroup Strategy Document at:
5 <[http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/long_term_program_develo](http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/long_term_program_development/advisory_wrgrp_strategy.pdf)
6 [pment/advisory_wrgrp_strategy.pdf](http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/long_term_program_development/advisory_wrgrp_strategy.pdf)>.
7 ^c Water Quality Management Plans (WQ Plans)—could be on the farm or watershed level.
8 ^d Central Valley Water Board implementation mechanism for adoption of program requirements:
9 Conditional Waiver of Waste Discharge Requirements (Waiver); Waste Discharge Requirements (WDRs).
10 ^e Water quality management plans are required only where water quality problems have been identified.
11 ^f CVWB = Central Valley Regional Water Quality Control Board.
12 ^g Joint powers authority or other legal entity assuming responsibility for discharge in an area.

14 **Alternative SW/GW 1—No Change Alternative**
15 **(Maintain Current Program)**

16 **Surface Water**

17 This alternative would require that growers, wetlands managers, nursery owners, and irrigation
18 districts (hereafter referred to as growers) comply with applicable water quality standards (e.g.,
19 chemical, bacterial, salt standards), protect beneficial uses (e.g., aquatic life, drinking water) and
20 prevent nuisance.

21 This alternative would be based on watershed monitoring to determine whether operations are
22 causing water quality problems. Where monitoring indicates a problem, third-party groups and
23 growers would be required to implement management measures to address the problem.

1 **Groundwater**

2 Assembly Bill 3030, which is codified in California Water Code section 10750, authorized local
3 agencies within groundwater basins to prepare and adopt groundwater management plans with the
4 following recommended components:

- 5 1. Control of saline water intrusion.
- 6 2. Identification and management of wellhead protection areas and recharge areas.
- 7 3. Regulation of the migration of contaminated groundwater.
- 8 4. The administration of a well abandonment program.
- 9 5. Mitigation of conditions of overdraft.
- 10 6. Replenishment of groundwater extracted by water producers.
- 11 7. Monitoring of groundwater levels and storage.
- 12 8. Facilitating conjunctive use operations.
- 13 9. Identification of well construction policies.
- 14 10. The construction and operation by the local agency of groundwater contamination cleanup,
15 recharge, storage, conservation, water recycling, and extraction projects.
- 16 11. The development of relationships with state and federal regulatory agencies.
- 17 12. The review of land use plans and coordination with land use planning agencies to assess
18 activities that create a reasonable risk of groundwater contamination.

19 Local agencies throughout the Central Valley have developed groundwater management programs
20 pursuant to California Water Code section 10750.

21 Senate Bill 1938 imposed additional groundwater management program requirements on local
22 agencies seeking state funds, administered by the California Department of Water Resources, for
23 construction of groundwater projects. These requirements include a groundwater management plan
24 that includes components relating to the monitoring and management of groundwater levels within
25 the basin, groundwater quality degradation, inelastic land surface subsidence, and changes in
26 surface flow and surface water quality that directly affect groundwater levels or quality.

27 In addition to local groundwater management plans, the California Department of Pesticide
28 Regulation (DPR) regulates the use of pesticides found in groundwater (Groundwater Protection
29 Program). DPR's Groundwater Protection Program requires that growers implement management
30 measures to prevent pesticides from moving to groundwater. DPR also conducts monitoring for
31 pesticides to evaluate management measures and overall program effectiveness.

32 This alternative would not establish new Central Valley Water Board requirements for regulating
33 irrigated agricultural discharges to groundwater. The alternative would continue to rely on local
34 expertise in groundwater management and DPR's Groundwater Protection Program to protect
35 groundwater quality.

1 **Implementation Mechanisms and Lead Entity**

2 Under this alternative, the Central Valley Water Board would renew the current waiver of waste
3 discharge requirements for irrigated lands. Third-party water quality coalition⁴ groups would
4 continue to function as lead entities. These coalition groups would continue to work on behalf of the
5 members to ensure all Central Valley Water Board requirements are met.

6 As in the current program, coalition groups would be approved by the Central Valley Water Board
7 prior to functioning as a lead entity. Specifically, coalition groups would:

- 8 • Interact between the Central Valley Water Board and member growers.
- 9 • Coordinate required monitoring.
- 10 • Organize and provide water quality education.
- 11 • Develop water quality management plans where monitoring results indicate exceedances of
12 applicable water quality objectives.

13 Under this alternative growers would be ultimately responsible for ensuring compliance with
14 program requirements. Any Central Valley Water Board enforcement actions would need to be
15 directed toward individual growers.

16 **Regulatory Requirements**

17 In order to be eligible for this alternative, growers would be required to be a member of an
18 approved water quality coalition group and pay applicable fees, and to implement practices to
19 protect water quality. Growers that do not meet these requirements would be required to work
20 directly with the Central Valley Water Board and obtain individual waste discharge requirements or
21 a waiver of waste discharge requirements.

22 **Monitoring Provisions**

23 Monitoring under this alternative would be the same as the watershed-based assessment and core
24 monitoring required under the current ILRP. Under this monitoring scheme, coalition groups would
25 work with the Central Valley Water Board to develop monitoring plans for Central Valley Water
26 Board approval. These plans would specify monitoring parameters and site locations. Required
27 monitoring would include the following parameters and frequencies.

⁴ Water Quality Coalition groups have formed throughout the Central Valley to function as representative or “lead” entities in the administration of the current ILRP. Coalitions represent growers, provide education, organize monitoring, and work with the Central Valley Water Board to help ensure that the current program is effectively implemented.

1 Assessment monitoring for 1 year out of every 3 years to include:

Parameter	Frequency
303(d) listed constituents with agricultural source	Monthly
Water column toxicity, pesticides, metals, nutrients, pathogens, physical parameters	Monthly
Toxicity identification evaluation—as needed	Monthly
Sediment toxicity	Twice per year
Photo monitoring	During every monitoring event

2

3 Continuing core monitoring to include:

Parameter	Frequency
General physical parameters, nutrients, pathogens	Monthly
Parameters/constituents of concern as determined by the Central Valley Water Board	Monthly
Photo monitoring	During every monitoring event

4

5 **Alternative SW 2—Water Quality Management Measures**

6 Grower groups would be eligible for the Water Quality Management Measures Alternative if they are
7 participants in a program demonstrating past or planned implementation of management measures
8 to protect water quality. The goal of this alternative is to ensure that ILRP objectives are met
9 through local implementation of water quality management measures.

10 **Implementation Mechanisms and Lead Entity**

11 Under this alternative, the Central Valley Water Board would develop either a specific waiver of
12 waste discharge requirements, or tiered requirements under a waiver already administered by the
13 coalition (or other third-party group).

14 The coalition or other local entity would be responsible for general administration of the ILRP
15 requirements and would be required to develop a watershed or area member management
16 practices plan. The plan would specify optional water quality management practices that could be
17 implemented to achieve plan objectives (see Attachment A) and would be subject to Central Valley
18 Water Board review and approval. This plan would be developed consistent with the area or
19 watershed commodity types, common agricultural practices, pesticides commonly used, and local
20 land characteristics. Optional practices would be provided allowing the grower to adapt to his or her
21 specific conditions for compliance with the ILRP. The plan would also consider the results of water
22 quality sampling conducted under the current ILRP. This plan need not include a requirement that
23 every grower implement a list of specific practices. It could, for example, involve implementing
24 management measures or management objectives that serve a group of growers.

25 The plan would be developed by local agencies with expertise in agriculture (growers, University of
26 California [UC] Cooperative Extension, agricultural commissioners, National Resources Conservation
27 Service [NRCS], and Resource Conservation Districts [RCD]). Grower input is critical for this to

1 occur. The coalition would also be responsible for the following when developing and implementing
2 the watershed or area management practices plan.

- 3 • Informing local growers of the requirements in the watershed management plan through an
4 education and outreach program.
- 5 • Obtaining local grower input for plan development.
- 6 • Determining local needs for compliance.
- 7 • Facilitating implementation of the management plan.

8 Coalition group administrative requirements would include:

- 9 • Program implementation.
- 10 • Interacting with the Central Valley Water Board and growers to provide reports to the Central
11 Valley Water Board.
- 12 • Providing to the Central Valley Water Board an annual report with a summary of program
13 activities.
- 14 • Maintaining an up-to-date list of program participants that would be provided, on request, to the
15 Central Valley Water Board.
- 16 • Organizing an educational program for growers. The goal of the education program would be to
17 inform growers of the ILRP requirements, water quality concerns, and management practices
18 available to address those concerns.

19 Under this alternative, individual growers would be responsible for implementing recommended
20 water quality management practices, if needed. Growers that have implemented water quality
21 management practices in good faith would not be penalized unless the management practice was
22 not properly implemented (as determined by the local expert).

23 General Central Valley Water Board role and responsibilities would include:

- 24 • Seeking 100% ILRP participation.
- 25 • Providing review, input, and approval of area or watershed management practice plans.
- 26 • Reviewing overall program performance with regard to achieving ILRP objectives.
- 27 • Responding to individual problems and complaints dealing with irrigation discharge.
- 28 • Helping inform the coalition and its membership regarding information from ambient water
29 quality monitoring programs implemented outside the requirements of the ILRP.

30 **Regulatory Requirements**

31 In order to be eligible for this alternative, growers would be required to:

- 32 • Be a member of the coalition and pay any applicable fees.
- 33 • Implement water quality management practices in accordance with the watershed or area
34 management practices plan.
- 35 • Provide the coalition with management practices information requested.

1 Growers that do not meet ILRP eligibility requirements must enroll in another ILRP track (e.g.,
2 another third-party program), or work directly with the Central Valley Water Board.

3 **Monitoring Provisions**

4 Monitoring will consist of Central Valley Water Board receipt of an annual report recording the
5 progress in implementing the water quality management plan. This will be prepared by the local
6 entity and submitted by the coalition (or some similar arrangement). Individual growers will report
7 compliance with the management plan objectives.

8 **Alternative SW 3—Individual Water Quality Management Plan**

9 In this alternative, growers would have the option to work directly with the Central Valley Water
10 Board or another implementing entity (e.g., agricultural commissioners, resource conservation
11 districts) in the development of an individual Water Quality Management Plan (WQMP). Growers
12 would individually apply for a conditional waiver that would require they obtain Central Valley
13 Water Board approval of their WQMP.

14 This alternative would provide an option for ILRP compliance in addition to (and separate from)
15 participation in a coalition or third-party group program. On-farm implementation of effective water
16 quality management measures would be the mechanism to reduce or eliminate waste discharged to
17 surface water. This alternative would provide incentive for individual growers to participate by:

- 18 • Minimizing ongoing costs for participation in a group program and for water quality monitoring.
19 It is anticipated that water quality monitoring can be reduced because growers would be
20 implementing on-farm management measures that reduce or eliminate the discharge of waste to
21 surface water.
- 22 • Providing growers with Central Valley Water Board certification that they are implementing
23 farm management measures to protect surface waters.

24 **Implementation Mechanisms and Lead Entity**

25 Pursuant to California Water Code section 13269, conditional waivers would be issued for all
26 applicable irrigated agricultural operations that discharge waste to surface water. The Central Valley
27 Water Board would be the lead entity for implementation and enforcement of this individual waiver
28 program. Growers would be responsible for complying with program requirements (e.g., payment of
29 a required fee and development of a WQMP).

30 Central Valley Water Board role and administrative responsibilities would include the following.

- 31 • The Central Valley Water Board would review applications for individual waivers and determine
32 priorities for WQMP review and approval. Criteria for priority would include size of operation,
33 likelihood for water quality impacts and operations in watershed areas with documented
34 problems. Individual WQMPs could be developed by working directly with the Central Valley
35 Water Board and/or with the assistance of another technical service entity (e.g., agricultural
36 commissioner, RCD, UC Cooperative Extension, private consultant). In the review and approval
37 of individual WQMPs, Central Valley Water Board staff would conduct inspections of ranch/farm
38 operations, as needed, to evaluate existing operations and management practices, and verify
39 that management practices referenced in the WQMP are accurate and appropriate. Any needed
40 changes to existing operations would be discussed, negotiated, and documented in the WQMP.

- 1 • The Central Valley Water Board would negotiate and enter into a Memorandum of
2 Understanding (MOU) with technical service providers wanting to assume the role of assisting
3 growers in the development of a WQMP. The Central Valley Water Board may choose to delegate
4 WQMP review and approval authority to the technical service entity.
- 5 • Approved WQMPs would be kept on file with the Central Valley Water Board, with any involved
6 technical service entity, and on site with the grower.

7 General Central Valley Water Board role and responsibilities would include:

- 8 • Identification of those not in compliance with ILRP requirements.
- 9 • Negotiation of MOUs with potential technical service providers wanting to establish a program
10 to assist growers in WQMP development (this would include protocol for delegating to that
11 entity authority for plan review and approval).
- 12 • Establishment of Central Valley Water Board criteria for priority selection of WQMPs for review
13 and approval.
- 14 • Conducting on-site inspections of WQMPs and management practices as part of the plan review
15 and approval process.
- 16 • Issuing certification that the participating grower is implementing management practices that
17 protect water quality (following WQMP review and approval).

18 **Regulatory Requirements**

19 For program compliance, growers would be required to complete the following.

- 20 • Apply directly to the Central Valley Water Board for an individual waiver.
- 21 • Develop a WQMP working either directly with the Central Valley Water Board and/or with
22 another implementing entity (RCD, coalition, private consultant, etc.) within one year of
23 enrollment under the waiver.
- 24 • Submit WQMP for review and approval by the Central Valley Water Board.
- 25 • Maintain and update approved WQMP as operations and conditions change.
- 26 • Implement applicable water quality management practices consistent with the WQMP.
- 27 • Allow inspection of the production area by the Central Valley Water Board, or representative, to
28 verify satisfactory implementation of management practices and accuracy of WQMP.
- 29 • Pay required program implementation fees.

30 **WQMP Requirements**

31 Applicable operations would be required to develop individual WQMPs. For guidance and
32 consistency, the Central Valley Water Board would develop a standard WQMP template, but it is
33 expected that, at a minimum, plans would describe those practices needed or currently in use to
34 achieve water quality protection. Growers would be encouraged to work with technical service
35 organizations such as RCDs and the UC Cooperative Extension in the development of WQMPs.

36 WQMP content would at a minimum include: 1) name and contact information of owner/operator;
37 2) description of operations including number of irrigated acres, crop types, and chemical/fertilizer

1 application rates and practices; 3) maps showing the location of operations and named water
2 bodies; and 4) applicable information on water quality management practices used to achieve
3 general ranch/farm management objectives and reduce or eliminate discharge of waste to surface
4 waters.

5 The Central Valley Water Board would collect a one-time application and processing fee for WQMP
6 development and approval. Subsequent administrative fees may be required to cover Central Valley
7 Water Board costs for follow-up inspection and management practice evaluation.

8 **Monitoring Provisions**

9 Unless stipulated in the WQMP, owners/operators would not be required to conduct water quality
10 monitoring of adjacent receiving waters. Required monitoring would include evaluation of
11 management practice effectiveness (e.g., monitoring that an installed tailwater return system is
12 preventing off-site discharge, review of erosion prevention practices after storm events, visual
13 monitoring of turbidity of field discharge). An annual report to the Central Valley Water Board
14 would be required that discusses the status of management practice implementation and an
15 evaluation of the performance of those practices. The Central Valley Water Board would find that
16 growers complying with the requirements of this alternative “do not pose a significant threat to
17 water quality.” Upon making this finding, the Central Valley Water Board is allowed to waive
18 monitoring requirements per Section 13269 of the California Water Code, thus reducing the
19 required monitoring to reviewing whether growers are effectively implementing WQMPs (i.e., no
20 ambient monitoring requirements).

21 Requirements for individual ranch/farm monitoring would be agreed to by the owner/operator and
22 the Central Valley Water Board and would be included in the WQMP. The Central Valley Water
23 Board and/or the MOU entity would conduct annual site inspections on a selected number of
24 individual WQMPs as an additional means of monitoring the implementation of management
25 practices.

26 **Alternative SW/GW 4(a)—Direct Oversight**

27 In this alternative, growers would apply directly with the Central Valley Water Board to obtain
28 coverage under a conditional waiver of waste discharge requirements. Application requirements
29 would include farm location, operations description, discharge characterization, and receiving water
30 information. This alternative would require that growers develop individual farm water quality
31 management plans. Growers would be required to implement the management practices identified
32 in their plans. This alternative would require that growers comply with applicable water quality
33 standards, protect beneficial uses, and prevent nuisance.

34 **Implementation Mechanisms and Lead Entity**

35 To implement this alternative, the Central Valley Water Board would develop a conditional waiver of
36 waste discharge requirements for irrigated lands. Individual growers would be lead entities in
37 working directly with the Central Valley Water Board and would be responsible for applying for
38 coverage under the conditional waiver, developing farm water quality management plans, and
39 conducting any required monitoring and reporting.

1 This alternative requires that growers be ultimately responsible for ensuring compliance with
2 program requirements. Any Central Valley Water Board enforcement actions would be directed
3 toward individual growers.

4 **Regulatory Requirements**

5 Specific regulatory requirements for growers would include the following.

- 6 • Prepare a farm water quality management plan—this plan must also be kept on the site and
7 submitted to the Central Valley Water Board upon request by the Executive Officer.
- 8 • Implement the farm water quality management plan.
- 9 • Complete fifteen hours of farm water quality education.
- 10 • Minimize waste discharge to ground and surface waters through implementation of irrigation,
11 nutrient, pesticide management, and erosion control management practices.

12 Growers that do not meet the aforementioned requirements would be required to obtain individual
13 waste discharge requirements or an individual waiver of waste discharge requirements for their
14 operations.

15 **Monitoring Provisions**

16 **Surface Water Monitoring**

17 Growers would have the option of conducting individual monitoring or forming third-party groups
18 to conduct cooperative monitoring programs. Regardless of the monitoring selected, growers would
19 be responsible for implementing management practices in response to any exceedances of
20 applicable water quality objectives shown by monitoring. Required monitoring would include one of
21 the following.

22 **Individual Monitoring**

23 Individual monitoring would include annual monitoring of implemented management practices,
24 monitoring for constituents of concern in water discharged offsite (e.g., nutrients and pesticides
25 used; pathogens for irrigated pasture). Monitoring results would be submitted in an annual report to
26 the Central Valley Water Board.

27 **Cooperative Monitoring**

28 Growers could form third-party groups to conduct cooperative monitoring programs. These groups
29 would work with the Central Valley Water Board to identify monitoring sites and specific
30 monitoring parameters (e.g., visual, chemical, etc.). Growers would be ultimately responsible for
31 ensuring that monitoring requirements are carried out according to the requirements in the
32 cooperative monitoring program.

33 Cooperative monitoring would include regional water quality monitoring for constituents of
34 concern. Monitoring locations would be limited to watercourses that are mainly agricultural and
35 wetland runoff in order to determine whether these discharges are meeting applicable water quality
36 objectives. Monitoring would also include a survey of the management measures implemented by
37 cooperative monitoring program members. Monitoring results would be submitted in an annual

1 report to the Central Valley Water Board. Required monitoring would be similar to monitoring
2 under the current ILRP.

3 **Groundwater Monitoring**

4 This alternative would not require any regulated community monitoring of groundwater. The
5 Central Valley Water Board would coordinate with other agencies that collect groundwater
6 monitoring data to gather data and provide a report that would summarize groundwater nitrate,
7 salts, pathogens, and pesticides in agricultural areas throughout the Central Valley. These agencies
8 would include the California Department of Water Resources, the United States Geological Survey,
9 the California Department of Pesticide Regulation, and the California State Water Resources Control
10 Board.

11 Under this alternative, the Central Valley Water Board would be responsible for publishing a report
12 every 5 years summarizing data collected, any findings regarding groundwater quality and
13 beneficial uses, and a review of groundwater studies conducted in agricultural areas.

14 **Alternative SW/GW 4(b)—Direct Oversight**

15 This program would consist of general waste discharge requirements (General Order) designed to
16 protect surface water and groundwater from discharges associated with irrigated agriculture.

17 All growers would be required to apply for and obtain coverage under the General Order. The
18 General Order would include requirements to (1) develop and implement a farm water quality
19 management plan; (2) monitor discharges of tailwater, drainage water, and storm water to surface
20 water; nutrients removed by harvested crops; applications of irrigation water, nutrients, and
21 pesticides; and groundwater; (3) keep records of irrigation water and pesticide applications and
22 nutrients applied, harvested, and moved off the site; and (4) submit an annual monitoring report.

23 This program would rely on coordination with the DPR Groundwater Protection Program for
24 protecting groundwater from agricultural use of pesticides.

25 **Implementation Mechanisms and Lead Entity**

26 Under this alternative, the Central Valley Water Board would develop general waste discharge
27 requirements (General Order) for irrigated agriculture.

28 The lead entity would be the Central Valley Water Board. The Central Valley Water Board would
29 adopt the General Order, enroll individual operations under the General Order, provide regulatory
30 oversight and enforce the requirements of the General Order. The Central Valley Water Board would
31 be responsible for the following.

- 32 ● Identifying those not in compliance with ILRP requirements and taking appropriate
33 enforcement action.
- 34 ● Developing a prioritization scheme for determining where monitoring wells would be required
35 to assess potential impacts to groundwater quality and overall program effectiveness.
- 36 ● Conducting onsite inspections to review farm water quality management plans and overall
37 implementation.

- 1 • Coordinating with the DPR and State Water Board’s Groundwater Ambient Monitoring
2 Assessment Program to obtain geographic information system-compatible monitoring data for
3 pesticides in the Central Valley. The Central Valley Water Board would also be responsible for
4 reviewing this data with the DPR to determine if additional areas should have additional
5 pesticide management measures or monitoring instituted.

6 In this alternative, individual growers would directly enroll under the General Order and ultimately
7 be responsible for complying with program requirements. Any enforcement actions would be
8 directed at the individual growers.

9 **Regulatory Requirements**

10 All growers would be required to develop and implement farm water quality management plans
11 within **2 years** of enrollment under the General Order. The farm water quality management plans
12 would include the following.

- 13 • Name and contact information of owner/operator.
- 14 • Description of operations, including number of irrigated acres, crop types, and types of
15 fertilizers and pesticides used.
- 16 • Maps showing the location of operations and nearby named water bodies.
- 17 • Management practices that are or will be in place to minimize or eliminate discharge of waste
18 constituents (e.g., nutrients, pesticides, sediment, salts, pathogens) to surface water and
19 groundwater. These practices could include, but are not limited to tailwater return systems,
20 efficient irrigation systems, and buffer zones. Growers would be encouraged to work with
21 technical service organizations such as Resource Conservation Districts and UC Cooperative
22 Extension offices in the development of effective site specific water quality management
23 practices.
- 24 • A Nutrient Management Plan (NMP) if commercial fertilizers or manure are used. The NMP
25 would have to be developed by a certified nutrient management specialist, designed to protect
26 surface water and groundwater, maintained onsite, and submitted to the Central Valley Water
27 Board upon request.
- 28 • An Irrigation Water Management Plan (IWMP) which considers crop water use requirements
29 and minimum leaching requirements to reduce deep percolation of irrigation water to
30 groundwater. The IWMP would have to be designed to protect surface water and groundwater,
31 maintained onsite and submitted to the Central Valley Water Board upon request.
- 32 • Management practices consistent with the DPR requirements for agricultural use of pesticides.
- 33 • Where necessary as requested by the Executive Officer, additional pesticide management
34 measures necessary to protect groundwater in areas identified through coordination with the
35 DPR.

36 **Monitoring Provisions**

37 Each operation would be required to conduct the following monitoring and submit the results to the
38 Central Valley Water Board annually.

- 1 • Discharge Monitoring:
 - 2 ○ Tailwater discharges (constituents of concern)
 - 3 ○ Stormwater discharges (constituents of concern)
 - 4 ○ Discharges of subsurface (tile) drainage systems (constituents of concern)
- 5 • Nutrient Monitoring:
 - 6 ○ All nutrients applied (commercial fertilizers, manure, irrigation water, etc.).
 - 7 ○ Plant tissue at harvest for nutrients removed.
 - 8 ○ Soil nitrogen and phosphorus once every 5 years.
- 9 • Pesticide Monitoring:
 - 10 ○ Types and amounts of pesticides applied—The Central Valley Water Board will coordinate
 - 11 with DPR and agricultural commissioners to gather this information.
- 12 • Groundwater Monitoring:
 - 13 ○ Sample all supply wells annually for nitrate and electrical conductivity (or total dissolved
 - 14 solids) and for major cations and anions if elevated concentrations of nitrate or electrical
 - 15 conductivity are detected.
 - 16 ○ Install and sample monitoring wells when requested by Executive Officer (to be prioritized
 - 17 based on Central Valley Water Board staff-developed vulnerability factors).

18 **Alternative GW 2—Local Groundwater Management Plans**

19 There are number of local agencies throughout the Central Valley that have developed groundwater
 20 management programs pursuant to California Water Code section 10750. Under this alternative the
 21 Central Valley Water Board would amend the Basin Plan to allow irrigated agricultural discharges to
 22 groundwater in areas that have adopted section 10750 groundwater management plans.

23 In addition to local groundwater management plans, the DPR regulates the use of pesticides found in
 24 groundwater (Groundwater Protection Program). DPR’s Groundwater Protection Program requires
 25 that growers implement management measures to prevent pesticides from moving to groundwater.
 26 DPR also conducts monitoring for pesticides to evaluate management measures and overall
 27 program effectiveness. This alternative relies on coordination with DPR for regulating discharges of
 28 pesticides to groundwater.

29 **Implementation Mechanisms and Lead Entity**

30 Under this alternative, the Central Valley Water Board would amend the Basin Plan to allow waste
 31 discharges to groundwater from irrigated agricultural lands for areas that 1) are participating in a
 32 local Senate Bill 1938 groundwater management plan (see “Regulatory Requirements”), or 2) obtain
 33 a waiver or waste discharge requirements from the Central Valley Water Board, or 3) provide
 34 information that indicates the threat of agricultural discharge of waste to groundwater from their
 35 operations is minimal⁵.

⁵ This information could be developed by growers or the Central Valley Water Board on an individual or area-wide basis.

1 **Regulatory Requirements**

2 For eligibility to discharge to groundwater under the Basin Plan under this alternative, Water Code
3 section 10750 local groundwater management plans would be required contain the following
4 elements:

- 5 • Program goals must be consistent with Basin Plan water quality objectives for groundwater,
- 6 • Monitoring for groundwater quality,
- 7 • Reporting of monitoring results in an aggregated manner,
- 8 • Evaluation of effectiveness of existing groundwater management policies, and
- 9 • Ability to amend the plan if objectives are not being met.

10 **Monitoring Provisions**

11 For eligibility under this alternative, monitoring programs established under local groundwater
12 management plans would be required, at a minimum, to test for and report on nitrates and salts.

13 Also, under this alternative the Central Valley Water Board would coordinate with other agencies
14 that collect groundwater monitoring data to gather data and provide a report that would summarize
15 groundwater nitrate, salts, pathogens, and pesticides in agricultural areas throughout the Central
16 Valley. These agencies would include: California Department of Water Resources, United State
17 Geological Survey, California Department of Pesticide Regulation, and California State Water
18 Resources Control Board.

19 Under this alternative, the Central Valley Water Board would be responsible for publishing a report
20 every 5 years summarizing data collected, any findings regarding groundwater quality and
21 beneficial uses, and a review of groundwater studies conducted in agricultural areas.

22 **Alternative GW 3(a)—Tiered Threat-Based Groundwater**
23 **Protection Program**

24 This alternative is a tiered threat-based approach for regulating discharges of waste to groundwater
25 from irrigated agriculture. These operations would be placed under one of three tiers based upon
26 the operation’s threat to groundwater quality with respect to nitrate and salts (as a portion of total
27 salts, nitrate is used in this alternative as an indicator parameter for salts). This allows for minimal
28 regulatory oversight for minimal and low threat operations while establishing necessary
29 requirements to protect groundwater quality from higher threat discharges. This alternative relies
30 on coordination with the DPR for regulating discharges of pesticides to groundwater. It will utilize
31 DPR’s Groundwater Protection Program but may expand beyond DPR’s program as necessary to
32 ensure that the goals of this program are met.

1 Under this alternative, an operation's potential threat to groundwater quality would be determined
2 based on:

- 3 • Each field's vulnerability to impact groundwater with excessive nitrate utilizing an approved
4 method or model (potentially the [Nitrate Groundwater Pollution Hazard Index](#) which is based
5 on crop types, irrigation methods, and soil types).⁶
- 6 • Existing groundwater quality data.
- 7 • Whether the operation is located within an area where nitrate concentrations in groundwater
8 are predicted to be more than 10 milligrams/liter nitrate as nitrogen (Nolan, B.T. and Hitt, K.J.)⁷.
9 Nolan and Hitt developed two nonlinear models to predict nitrate concentrations on a national
10 level in shallow (10 meters) and deeper (50 meters) groundwater used for drinking. The models
11 segregate nitrogen sources and physical factors that enhance or restrict nitrate transport and
12 accumulation in groundwater.

13 Threat-based definitions would include a three tier system as described here.

14 **Tier 1**

15 Tier 1 fields would be those that have a minimal potential to impact groundwater quality. Tier 1
16 applicability would be based on a site-specific evaluation of an agricultural waste discharge's
17 potential impact to groundwater considering such factors as the existing groundwater quality,
18 hydrogeologic conditions, nitrogen loading, crop types, and irrigation practices.

19 **Tier 2**

20 Tier 2 fields would be those that have a low potential to impact groundwater quality and would be
21 defined as those fields where vulnerability to nitrate is low as defined by an approved method or
22 model (i.e., if the Nitrate Groundwater Pollution Hazard Index for the field is 20 or less).

23 **Tier 3**

24 Tier 3 fields would be those that have a high potential to impact groundwater quality and would be
25 defined as those fields that (1) have a high vulnerability to impact groundwater with nitrate as
26 defined by an approved method or model (i.e., the Nitrate Groundwater Pollution Hazard Index is
27 more than 20) or (2) are within a section of land where groundwater monitoring data indicates
28 impairment of an applicable beneficial use (exceeds applicable water quality criteria for a
29 agricultural constituent) or are located in an area where nitrate concentrations in groundwater are
30 predicted to be more than 10 milligrams/liter nitrate as nitrogen (Nolan, B.T. and Hitt, K.J).

31 The conditions of the waiver or waste discharge requirements would be least comprehensive for
32 Tier 1 operations and most comprehensive for Tier 3 operations. If a Tier 3 operation has a high
33 potential to impact groundwater quality based only on practices which could be modified to reduce
34 the potential impact, the operation may be able to change its practices to lower its potential impact
35 to groundwater and thus move into Tier 2.

⁶ See *Interpretation of Nitrate Groundwater Pollution Hazard Index Number*, A Supporting Document for the UC Center for Water Resources Nitrate Groundwater Pollution Hazard Index available at <http://www.lib.berkeley.edu/WRCA/WRC/pdfs/HINumberInterp.pdf>.

⁷ Nolan, B.T., Hitt, K.J. *Vulnerability of Shallow Groundwater and Drinking-Water Wells to Nitrate in the United States*. Environ. Sci. Technol. 2006, 40, 7834-7840.

1 This alternative would also include two options for groundwater monitoring. One option would be
2 to conduct site-specific monitoring on an individual basis. The other option would be to contribute
3 to an independent organization or entity that would be responsible for collecting existing
4 groundwater monitoring data, conducting regional and site-specific groundwater monitoring, and
5 utilizing an existing database system to compile all of the monitoring data (e.g., the State Water
6 Resources Control Board GeoTracker system).

7 **Implementation Mechanism and Lead Entity**

8 Under this alternative, the Central Valley Water Board would develop a general waiver program or
9 waste discharge requirements (WDRs) in which a third-party group would assist growers in
10 compliance with the waiver or WDRs. The waiver or WDRs would include the criteria to be placed
11 under Tier 1, 2, or 3 and the conditions that operations must meet to maintain coverage under the
12 waiver or WDRs. It may be necessary to also have a waiver program or WDRs specifically for
13 individual growers if there is no third-party group available to a grower or if some growers do not
14 want to, or do not meet the requirements to be covered under a waiver administered by a third-
15 party group.

16 If third-party groups are available to assist growers in compliance with the waiver/WDRs, the third-
17 party groups would have to agree to assume the following responsibilities.

- 18 1. Assist operations in enrollment with the Central Valley Water Board under the waiver program.
- 19 2. Provide members and the Central Valley Water Board, upon request, an organizational or
20 management structure identifying persons responsible for ensuring that program requirements
21 are fulfilled.
- 22 3. Provide publicly available details and summaries of expenditures of fees for compliance with the
23 ILRP.
- 24 4. Maintain a list of growers and their management measures in place, and provide the list to the
25 Central Valley Water Board.
- 26 5. Gather grower information necessary to evaluate the potential to impact groundwater quality
27 with respect to nitrate (i.e., crop type, soil type, and irrigation method if the Nitrate
28 Groundwater Pollution Hazard Index is used), existing groundwater data and information on
29 areas where nitrate concentrations in groundwater are predicted to be greater than 10
30 milligrams/liter nitrate as nitrogen (Nolan, B.T. and Hitt, K.J) for initial enrollment in the
31 program and continue to collect this information when the grower submits changes that could
32 affect a field's potential to impact groundwater or if new groundwater monitoring data becomes
33 available. Assist growers in determining if they should be in Tier 1, 2, or 3 and provide this
34 information to the Central Valley Water Board.
- 35 6. Gather documentation from growers on the implementation of wellhead protection measures.
- 36 7. Assist growers in the development of nutrient management plans where necessary, organize
37 monitoring, and report to the Central Valley Water Board.
- 38 8. Organize a mandatory educational program for growers (the Central Coast Water Board ILRP is
39 an example) with the goal of the program being to inform growers on long-term program
40 requirements, water quality concerns, and management practices for groundwater.

- 1 9. Conduct a specified number of site reviews of Tier 3 growers annually. The site reviews will
2 include a review of nutrient management plans and management practices in place.
- 3 10. Notify third-party group members each time the group is late on a deadline and provide
4 information regarding the reason for the delinquency.
- 5 11. Submit an annual report to the Central Valley Water Board that includes information on site
6 reviews conducted, a list of growers enrolled in their group and their status as Tier 1, 2, or 3
7 (with changes noted), groundwater monitoring data obtained, and a list of educational programs
8 conducted along with attendance records of such programs.

9 **Regulatory Requirements**

10 Each grower would be required to submit an application to the Central Valley Water Board to obtain
11 coverage under the waiver program. The growers would be responsible ultimately for compliance
12 with the waiver conditions. The requirements for growers in this waiver program would include the
13 following.

14 **All Operations:**

- 15 1. Submit an application to the Central Valley Water Board to enroll in the waiver program.
- 16 2. Maintain membership with a third-party group (individual waiver required if membership is not
17 maintained).
- 18 3. Comply with California Code of Regulations Title 3 section 6609 for Wellhead Protection.
19 Section 6609 requirements were developed to protect groundwater from pesticides. These, or
20 similar practices would also be instituted for fertilizer use.

21 **Tier 2 and 3 Operations:**

- 22 1. Evaluate each field using an approved method or model (e.g., Nitrate Hazard Index).
- 23 2. Submit the following information to the third-party group:
 - 24 a. Approved method or model results for each field.
 - 25 b. Any available site-specific groundwater monitoring data for the fields covered under the
26 ILRP.
- 27 3. Submit a statement to the third-party group (or to the Central Valley Water Board if under an
28 individual waiver/WDRs) when changes have been made to practices that would lower the
29 potential impact to groundwater from high to low, thus allowing the operator to move from Tier
30 3 into Tier 2.
- 31 4. Attend educational programs specified by the third-party group.

32 **Tier 1 Operations Only:**

33 Submit a site-specific evaluation to the Central Valley Water Board demonstrating that waste
34 discharge from irrigated agricultural operations has minimal potential impact to groundwater
35 quality.

1 **Tier 2 Operations Only:**

2 Within two years of enrollment, develop and implement a farm water quality plan to minimize
3 potential waste discharge to groundwater. For example plan measures, see pages 23–27 and 33–38
4 of the [University of California Department of Agriculture and Natural Resources Publication 8332,](#)
5 [The Farm Water Quality Plan.](#)

6 **Tier 3 Operations Only:**

- 7 1. Develop and implement a nutrient management plan (NMP) that is certified by a certified crop
8 specialist and that provides protection for both surface water and groundwater. The Nutrient
9 Management Plan must consider the rate, timing, and method of nutrient applications that do
10 not exceed the crop’s nutrient requirements considering the stage of plant growth; all nutrient
11 sources; soil, and climatic conditions; crop water use requirements, and minimum leaching
12 requirements to reduce deep percolation of irrigation water to groundwater.
- 13 2. Maintain the NMP at the facility and provide it to the Central Valley Water Board upon request
14 from the Executive Officer.
- 15 3. Maintain records of all nutrient applications, irrigation scheduling, and cropping patterns.
- 16 4. Allow the Central Valley Water Board and/or third-party group to inspect their facility and, if
17 applicable, the third-party group to submit the results to the Central Valley Water Board.

18 **Monitoring Provisions**

19 All growers in Tiers 2 and 3 would be required to elect one of two groundwater monitoring options.
20 They may elect to conduct individual monitoring or participate in cooperative monitoring by an
21 independent organization or entity.

22 **Individual Monitoring**

23 Individual monitoring would consist of seasonally sampling each domestic well and/or monitoring
24 well present on the facility for nitrate and total dissolved solids used on the facility.

25 **Cooperative Monitoring**

26 Cooperative monitoring would consist of:

- 27 1. Regional monitoring to provide baseline groundwater information and track trends in
28 groundwater quality over time.
- 29 2. Targeted site-specific studies to evaluate the effects of changes in management practices on
30 groundwater quality (this would occur only at a selected number of sites—the Fertilizer
31 Research and Education Program [FREP] will be approached to provide funding for this
32 monitoring).
- 33 3. Utilizing an existing database system to compile existing groundwater quality data and data
34 collected during regional and site-specific monitoring (e.g., the State Water Resources Control
35 Board’s GeoTracker system).

36 The Central Valley Water Board, agricultural industry and other stakeholders would identify an
37 independent organization or entity such as the U.S. Geological Survey, the University of California,
38 Lawrence Livermore National Laboratory, or the California Department of Water Resources suitable

1 to conduct the cooperative monitoring. These organizations or entities could be funded by
2 additional annual fees, dues, or other funding mechanisms such as grant money, or funding by the
3 California Department of Food and Agriculture’s FREP.

4 **Alternative GW 3(b)—Tiered Groundwater Program**

5 This groundwater program alternative would apply to all irrigated agricultural operations that have
6 the potential to discharge waste to groundwater. Operations would be classified into one of two tiers
7 based on potential threat to groundwater quality from pesticide and fertilizer use. Program
8 requirements would be based on the risk of discharge from an operation to groundwater. Those
9 operations with a higher risk of discharging pollutants to groundwater would be required to take
10 more actions to avoid or minimize the risk. The tiered approach could help focus efforts on
11 operations that pose a higher threat to groundwater quality, while reducing the costs and
12 requirements to those operations that pose less risk to groundwater.

13 This alternative is designed to protect public health and the environment by reducing discharges of
14 waste from irrigated lands to groundwater. The goal of this alternative is to ensure that all irrigated
15 agricultural operations are meeting applicable Basin Plan water quality objectives.

16 **Tier Definitions**

17 **Tier I Operations**

18 In order to be considered a Tier I operation irrigated lands must meet each of the following
19 conditions:

- 20 1. Have low-threat pesticide and fertilizer use (with respect to groundwater). Low-threat pesticide
21 and fertilizer operations are those that (a) do not use pesticides that have been found in or have
22 the potential to move to groundwater as evaluated by the California Department of Pesticide
23 Regulation Groundwater Protection Program (Title 3, California Code of Regulations section
24 6800), and (b) have fertilizer application rates that do not result in total nitrogen applied
25 exceeding 0.9–1.0 times the nitrogen that will be removed from the field in the harvested
26 portion of the crop (based on UC Cooperative Extension guidelines).
- 27 2. Are not located in a vulnerable hydrologic groundwater environment. Vulnerable hydrologic
28 groundwater environments are those in which there is an existing or threatened groundwater
29 impairment for salts, pesticides, or nitrates (e.g., existing underlying groundwater has been
30 shown to threaten or exceed the Basin Plan objectives), or areas identified by the Central Valley
31 Water Board as vulnerable based on scientific models/data on groundwater hydrology.

32 **Tier II Operations**

33 All irrigated lands that do not meet Tier I requirements would be classified as Tier II operations.
34 This includes operations that have low fertilizer or pesticide use, but are located in areas where
35 groundwater quality objectives for nitrate, salinity or any other constituent discharged by the
36 operation are threatened or exceeded (“vulnerable hydrologic environments”).

1 **Implementation Mechanisms and Lead Entity**

2 Waivers of waste discharge requirements would be developed for operations in Tier I; while either
3 individual or general waste discharge requirements would be developed for those operations in Tier
4 II. Tier I & II dischargers/operations could work directly with the Central Valley Water Board or
5 form legal entities to serve as responsible lead entities to interact with the Central Valley Water
6 Board on behalf of a group of growers (e.g., public agencies could form a joint powers authority
7 [JPA], growers could form an entity that would be legally responsible for waste discharge). Entities
8 such as groundwater management authorities, commodity groups or irrigation districts could
9 provide assistance in sampling and facilitate reporting to the Central Valley Water Board by
10 providing report templates, providing model water quality management practices, or assisting with
11 the development of nutrient management plans. However, permits would be granted only to a
12 responsible entity (i.e., either an individual grower or a JPA).

13 **Regulatory Requirements**

14 **Tier I Operations**

15 Operations classified under Tier I would be required to develop farm groundwater management
16 plans and implement management practices to minimize discharges of waste to groundwater (e.g.,
17 utilize flexibility in irrigation methods and timing to minimize deep percolation of wastewater).

18 Tier 1 operators must submit an annual report to the Central Valley Water Board that includes the
19 following.

- 20 ● Certified nutrient budget (including results of annual soil, irrigation well, and foliage sampling).
- 21 ● Signed statement outlining management practices implemented to minimize discharges to
22 groundwater (fertilizer application amounts, timing, irrigation practices, crop rotation, etc.).
- 23 ● Identification of any and all potential conduits to groundwater aquifers on the property
24 (including active, inactive, abandoned wells, dry wells, recharge basins or ponds, etc.) and steps
25 taken or to be taken to ensure all identified potential conduits do not carry contamination to
26 deeper groundwater depths (steps may include properly abandoning or sealing wells or control
27 of chemical and nutrient run-off to ponds or recharge basins).

28 **Tier II Operations**

29 Operations classified under Tier II would be required to meet the same requirements as Tier I
30 operators. Additionally, Tier II operators would be required to develop the following.

- 31 1. **Nutrient Management Plans.** All Tier II operations in vulnerable hydrologic groundwater
32 environments, or on farms in which nitrate levels are detected above one half the maximum
33 contaminant level, would be required to develop nutrient management plans aimed at closely
34 matching nutrient application rate to crop uptake, to be signed by a certified crop specialist.
35 These plans would be electronically submitted to the Central Valley Water Board.
- 36 2. **Pesticide Management Plans.** These plans would be required for Tier II operations above
37 groundwater basins where pesticides have been detected. Pesticide management plans would
38 include management practice descriptions and timelines for implementation. These plans would
39 be electronically submitted to the Central Valley Water Board.

1 Additionally, Tier II operators located in areas where nitrates threaten or exceed water quality
2 objectives will be required to certify that their nutrient management practices result in no
3 contribution of nitrate below the root zone that would contribute to or cause exceedance of water
4 quality objectives. Such heightened management practices may include phased fertilizer application,
5 crop rotation, cover cropping, irrigation practices, and limitations or a maximum cap of soil nitrogen
6 application applied per acre. Fertilizer applications should be 0.8–0.9 times the nitrogen that will be
7 removed from the field in the harvested portion of the crop, based on increased efficiency (timing,
8 irrigation) and soil building (crop rotation, cover cropping). The Central Valley Water Board may set
9 extra monitoring requirements to ensure these standards are being met. Furthermore, the Central
10 Valley Water Board may require further reduction goals for application (i.e., 0.75 application rates)
11 based on need.

12 **Monitoring Provisions**

13 **Tier I Operations**

14 Tier I operations would be required to provide annual reports (as outlined above), which include
15 nutrient use/budgeting and pesticide use reports, by electronic submittal to the Central Valley
16 Water Board. In order to minimize this reporting burden the Central Valley Water Board would
17 coordinate with county agricultural commissioners and the DPR to gather information on pesticide
18 use where feasible.

19 **Tier II Operations**

20 Tier II operations would be required to provide all the information Tier I operators must provide. In
21 addition, all Tier II operations would be required to participate in both of the following monitoring
22 tracks.

- 23 1. **Individual Farm Groundwater Monitoring.** All Tier II operators would be required to monitor
24 all groundwater wells on the property at least annually during peak summer months for
25 pesticides applied, nutrients, pathogens (if applicable), and salts. Results would be reported to
26 the Central Valley Water Board in an annual report, including information on well screening
27 depth (if available). The Central Valley Water Board would ensure that this data is integrated
28 into regional monitoring programs. Additional sampling or monitoring may be required by the
29 Central Valley Water Board staff to supplement data submitted.
- 30 2. **Regional Groundwater Monitoring.** Tier II operations would also be required to participate in
31 a basin, watershed, or aquifer-wide regional groundwater monitoring program for pesticides,
32 nutrients, pathogens, and salts. The monitoring goals would be to look at trends in groundwater
33 quality over time and to assess the impacts of management practices on groundwater quality,
34 including shallow groundwater and first encountered groundwater. In order to reduce
35 duplication of effort and cost, this program would be coordinated where feasible with other
36 agencies and programs collecting groundwater monitoring data. These regional monitoring
37 programs may be administered by local water agencies, integrated regional water management
38 groups, or other agencies as long as they report annually to the Central Valley Water Board and
39 meet the requirements of this program. The Central Valley Water Board would ensure that all
40 data is integrated into regional monitoring programs.

41 The Central Valley Water Board would ensure that regional monitoring programs are evaluated each
42 year to evaluate the effectiveness of permit requirements and provide guidance on water quality

1 management practices. This should be done in collaboration with relevant state agencies, including
2 but not limited to the Department of Food and Agriculture and the DPR.

3 **Enforcement**

4 The Central Valley Water Board will work with agricultural commissioners to provide inspections
5 and ensure that all farms are complying with the requirements of this program.

Attachment A

Area or Watershed Management Practice Plans

The implementation of water quality management measures is based on the premise that individual group members will be actively involved in implementing an area or watershed management practice plan. Throughout much of the Central Valley Regional Water Board area, watershed management plans have been or are being developed by local management entities (RCDs, watershed alliances, district organizations, etc.). These plans typically include the identification of principal watershed issues and concerns and describe appropriate actions to address those issues and concerns. While they may include water quality impacts from agricultural discharge as a watershed concern, these plans are usually more general than envisioned for an ILRP area or watershed management practice plan.

For an ILRP area or watershed management practice plan, the expectation would be the identification of a set of management objectives (also called management measures) and management practices that, if implemented, would be effective in addressing agricultural discharge-related impacts to water quality. Typically these management objectives and practices would be developed for crop types (e.g. wild rice, vineyards, citrus) or general agricultural operations (e.g. livestock management with irrigated pasture and other animal forage production, i.e. ranch operations) that are common to that geographic or watershed area. Management objectives tend to be more general (e.g. “manage irrigation water so as to eliminate, reduce, or slow the direct discharge of tailwater to adjacent watercourses”), while management practices are the more specific method used to achieve the management objective (e.g. collect tailwater in ponds or wetlands, recycle tailwater, discharge tailwater to vegetated buffers zones, modify irrigation methods). Selection of the appropriate management practice is typically done on a site-specific or property-specific basis.

In summary, as referenced in this alternative, an area or watershed management practice plan would include management objectives (by crop type or type of agricultural operation), common management practices that could be used to achieve the management objective, the approach to be used by the coalition (or other third party) to promote the implementation of management objectives and practices, and the approach to be used to track the watershed-wide level of management practice implementation and its effectiveness.

Where watershed management plans exist, these more specific area or watershed management practice plans would be made part of that broader watershed management plan.