

State of California  
The Natural Resources Agency  
DEPARTMENT OF WATER RESOURCES  
Division of Statewide Integrated Water Management  
Water Use and Efficiency Branch

# A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan



September 10, 2012

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<http://www.water.ca.gov/wateruseefficiency/sb7/committees/aq/a6/>

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## List of Acronyms and Abbreviations

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AF	Acre foot
AWMC	Agricultural Water Management Council
AWMP	Agricultural Water Management Plan
AWS	Agricultural Water Suppliers
CVPIA	Central Valley Project Improved Act (1992)
CWC	California Water Code
EWMP	Efficient Water Management Practices
DWR	Department of Water Resources
MOU	Memorandum of Understanding
RRA	Reclamation Reform Act (1982)
SB X7-7	The Senate Bill X7-7, the Water Conservation Act of 2009
SWP	State Water Project
SWRCB	State Water Resources Control Board
§	Code or Regulatory Section
USBR	United States Bureau of Reclamation

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# 1 Introduction

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The California Department of Water Resources (DWR) will assist agricultural water suppliers by providing guidance conducting workshops to help comply with the water management planning requirements of the Water Conservation Act of 2009 (Senate Bill X7-7 of 2009).

DWR will provide information on how agricultural water suppliers may meet the following requirements:

- Implementing efficient water management practices (EWMPs)
- Preparing and submitting an SB X7-7 Agricultural Water Management Plan (AWMP or Plan) including an AWMC MOU AWMP, and USBR AWMP.
- Complying with Agricultural Water Measurement Regulation reporting,
- Preparing and submitting an Aggregated Farm-Gate Delivery Report.

EWMPs required by California Water Code section 10608.48 (b) and (c)

AWMP required by California Water Code section 10820

Agricultural Water Measurement as specified in Title 23 California Code of Regulations

Aggregated farm-gate delivery required by California Water Code section 531.10

## 1.1 Important Deadlines

Upcoming deadlines specified in SB X7-7 and the Ag Water Measurement Regulation are as follows:

July 2012	Implement the Ag Water Measurement Regulation and complete any measurement device testing/certification in accordance with the Ag Water Measurement Regulation. Include in the 2012 Agricultural Water Management Plan (AWMP), if applicable, the required documentation and a plan for corrective action if existing measurement devices are not in compliance.
July 31, 2012	Begin implementing critical EWMPs and conditional EWMPs (for the latter, only if these are locally cost-effective and technically feasible).
December 31, 2012	Submit 2012 Plan to DWR.
July 31, 2013	Submit Agricultural Aggregated Farm-Gate Delivery Report to DWR.
December 2015	Complete corrective action for agricultural water measurement devices, if applicable, in accordance with the Ag Water Measurement Regulation and the 2012 Plan.
December 31, 2015	Submit 2015 AWMP to DWR.

## 1.2 Agricultural Water Management Planning Background

SB X7-7 states:

An Agricultural water supplier shall prepare and adopt the Plan on or before December 31, 2012, and shall update that Plan on December 31, 2015, and on or before December 31 every five years thereafter.

“Agricultural water supplier” is defined as a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. “Agricultural water supplier” includes a supplier or contractor for water regardless of the basis of right that distributes or sells water for ultimate resale to customers.

Every water supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt the Plan within one year after the date it has become an agricultural water supplier.

Agricultural water supplier shall make its proposed Plan available for public review and provide copies of its adopted Plan to certain entities.

Agricultural water supplier shall implement its Plan according to the schedule set forth in its Plan.

On or after July 1, 2013 an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the State unless the supplier complies with SB X7-7 (adopts the Plan and implements EWMPs). No agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to adopt and implement the Plan unless sufficient funding has specifically been provided to that water supplier for these purposes.

If the agricultural water supplier adopts an urban water management plan pursuant to SB X7-7 or by participating in area-wide, regional, watershed, or basin-wide water management planning, the supplier may satisfy the requirements of the Agriculture Water Management Planning Act (Part 2.8 of Water Code) if these plans meet or exceed the requirements of this Part.

### ***Important note regarding water supplier loan and grant eligibility***

AWMPs that meet SB X7-7 requirements are necessary for grant eligibility on or after July 1, 2013. If an agricultural water supplier doesn't implement all the EWMPs, the supplier can still be eligible if the following documentation is submitted to DWR:

- ✓ Schedule to Implement EWMPs (Chapter 2.7 of the Guidebook)
- ✓ Documentation justifying EWMPs are not locally cost effective or technically feasible. (Chapter 2.7 of the Guidebook)

## 1.3 Submittal Requirements - What to Submit

### **Option 1: Agricultural water suppliers that submit Plans to DWR in accordance to SB X7-7 Plan Content requirements**

Agricultural water suppliers (defined above) must submit an AWMP to DWR. The AWMP contents are outlined in section 10826 of the California Water Code and are described in the AWMP Guidebook. All agricultural water suppliers are required to report the EWMPs implemented and those planned, an estimate of efficiency improvement since the last report, and improvement expected in the next five to ten years. If an EWMP is determined to be not locally cost-effective or technically feasible, the water supplier is required to submit documentation for the determination in the Plan (see Chapter 2.7 of the Guidebook). All water suppliers must submit additional documentation required for water measurement (see Chapters 2.8 and 5 of the Guidebook).

### **Option 2: Agricultural water suppliers that submit Plans to the Agricultural Water Management Council (AWMC)**

Agricultural water suppliers that submit water management plans in compliance with Agricultural Water Management Council Memorandum of Understanding (AWMC MOU) requirements may submit these plans with additional information to satisfy SB X7-7 Plan requirements. Additional documentations required in the Plan are information on EWMPs implemented and EWMPs planned for implementation and estimate of efficiency improvements since the last report and efficiency improvements expected in the next 5 to 10 years. If any EWMP is determined to be not locally cost-effective or technically feasible, documentation for that determination (see Chapter 2.7 of the Guidebook); and documentation required by the Agricultural Water Measurement Regulation (Attachments A through E) shall be included (see Chapter 2.8 of the Guidebook). All additional documentation must be reviewed and adopted by the water supplier and be part of the Plan approved by the AWMC.

All agricultural water suppliers subject to SB X7-7 must implement the critical EWMPs (outlined in CWC 10608.48 (b)) and also conditional EWMPs (outlined in 10608.48 (c), if they are locally cost effective or technically feasible and report it (10608.48(d) and (e)).

### **Option 3: Agricultural water suppliers that submit Plans to U.S. Bureau of Reclamation**

Agricultural water suppliers that submit water conservation plans under the Central Valley Improvement Act of 1992 (CVPIA) or Reclamation Reform Act of 1982 (RRA) may submit these plans and additional documentation to DWR in order to satisfy SB X7-7 Plan requirements under certain conditions: 1) the water conservation plan has been adopted by the agricultural water supplier and submitted to the U.S. Bureau of Reclamation (USBR) within the previous four years and 2) the USBR has accepted the water

conservation plan as adequate. SB X7-7 does not require these agricultural water suppliers to prepare and adopt water conservation plans on a schedule different from that required by the USBR. The agricultural water suppliers that submit a plan to USBR may meet the requirements of section 10608.48 (d) and (e) [report of EWMPs implemented, planned for implementation, and estimate of efficiency improvements, as well as documentation for not locally cost effective EWMPs] by submitting the USBR accepted Plan to DWR. Additional documentation required in the Plan is information on compliance with the Agricultural Water Measurement Regulation (Attachments A through E; see Chapter 2.8 of Guidebook). This documentation must be in the Plan accepted by the USBR. DWR recommends CVPIA/RRA water suppliers provide report on water use efficiency information (required by section 10608.48(d); see Chapter 2.7 of Guidebook). CVPIA/RRA plans accepted as adequate by Reclamation are acceptable as 2012 plans to DWR, provided the water supplier submits the additional documentation to DWR and the plan was accepted as adequate after January 1, 2009.

## 1.4 Submittals to DWR

Submit hardcopy and CD to:

California Department of Water Resources  
Water Use and Efficiency Branch  
Division of Statewide Water Management  
901 P Street  
Sacramento, CA 95814  
Attn: Agricultural Water Use Efficiency

**Electronic copy** may be submitted by email to [agwue@water.ca.gov](mailto:agwue@water.ca.gov)

Additionally, all agricultural water suppliers subject to SBX7 7 must provide documentation required by the Agricultural Water Measurement Regulation (see Chapter 2.8 of the Guidebook) in the Plan for the following, when appropriate:

**Attachment A** - Legal Certification and Apportionment Required for Water Measurement

**Attachment B** - Engineer Certification and Apportionment Required for Water Measurement

**Attachment C** - Description of Water Measurement Best Professional Practices

**Attachment D** - Documentation of flow, velocity, or water level to volume

**Attachment E** - Device Corrective Action Plan Required for Water Measurement

**Attachment F** - Water Measurement Compliance Certification (Optional)

## 1.5 DWR's Review of Submittals

DWR will review all submittals to determine if plans and other documents meet the requirements of SB X7-7 and the Ag Water Measurement Regulation. DWR will inform water suppliers about the status of their plans as follows:

- If a water supplier chooses Option 1 and submits all the required documentation, the submittals will be accepted as meeting the requirements of SB X7-7. If information is missing, the supplier will be notified that the submittals do not meet the requirements of SB X7-7. The supplier may revise the submittals and, if needed, amend and resubmit them to DWR for review.
- If a water supplier chooses Option 2 and its AWMC MOU Plan is adopted and approved, and if all the required documentation outlined in Option 2 above has been submitted, the submittals will be accepted as meeting the requirements of SB X7-7. If information is missing, the supplier will be notified that the submittals do not meet the requirements of SB X7-7. The supplier may revise the submittals and, if needed, amend and resubmit the AWMC approved Plan to DWR for review.
- If a water supplier chooses Option 3 and its CVPIA/RRA Plan is adopted and accepted and if all the required documentation outlined in Option 3 above has been submitted, the submittals will be accepted as meeting the requirements of SB X7-7. If information is missing, the supplier will be notified that the submittals do not meet the requirements of SB X7-7. The supplier may revise the submittals and, if needed, amend and resubmit the adopted/accepted Water Conservation Plan to DWR for review.

## 1.6 DWR Report to the California Legislature

In accordance with SB X7-7, DWR, in consultation with the State Water Resources Control Board, will report to the Legislature on or before December 31, 2013, on the status of all submittals. DWR will not approve, disapprove, or critique individual submittals in its report to the Legislature and will provide a copy to the agricultural water suppliers that submitted plans.

The report will:

- Identify agricultural water suppliers that have submitted a Plan that meets the requirements of SB X7-7,
- Identify agricultural water suppliers that have not met the requirements,
- Identify outstanding elements of the Plans,
- Include EWMPs that have been implemented and planned for implementation,

- Include an evaluation of the effectiveness of SB X7-7 in promoting efficient water management practices,
- Include an assessment of how the implementation of EWMPs has affected and will affect agricultural operations including an estimate of water use efficiency improvements,
- Include the efficiency improvements identified in the Plans, and
- May make recommendations to the legislature on proposed changes to the SB X7-7.

## 1.7 Aggregated Farm-Gate Delivery Report

All agricultural water suppliers providing water (excluding recycled water) to at least 25,000 irrigated acres (and those supplying 10,000 to 25,000 acres if funding is available) must measure water delivery to their customers according to the Ag Water Measurement Regulation. That regulation specifies the format of the data to be reported to DWR (see Chapter 6.9 for aggregated farm-gate deliveries table in Article 2 Form (Rev. 6-20-2012)).

In addition, the following agricultural water suppliers must use best professional practices to measure water deliveries to their customers and must also submit the above report to DWR:

- Suppliers providing water for 10,000 to 25,000 acres of irrigated land if no funding is available, and
- Suppliers providing water for 2,000 to 10,000 acres of irrigated land or delivering 2,000 acre-feet or more of water annually.

DWR has issued a News Release on September 6, 2012 providing the necessary form for submittal of the agricultural water supplier farm-gate delivery reporting to DWR. DWR website <http://www.water.ca.gov/wateruseefficiency/agricultural/farmgatedelivery.cfm>

## 1.8 Using this Guidebook

The “Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan” (Guidebook) has been developed by the California Department of Water Resources (DWR) to assist agricultural water suppliers in complying with the requirements of the Water Conservation Act of 2009 (SB X7-7, Section I, Part 2.55, Division 6 of the Water Code), the associated Agricultural Water Management Planning Act (SB X7-7 Part 2.8), and the subsequent Agricultural Water Measurement Regulation requirements. It is meant to help agricultural water suppliers better understand the SB X7-7 requirements and assist in their development of an Agricultural Water Management Plan (AWMP or Plan). However, the water suppliers are solely responsible for ensuring that they have complied with SB X7-7 or other applicable laws and regulations. The Guidebook also provides information on how agricultural water suppliers may meet the requirements of the Agricultural Water Measurement Regulation (described in Title 23 California Code of Regulations) and associated compliance documentation, as well as Aggregated Farm-Gate Delivery Reporting Format for Article 2

required by CWC section 531.10.

## 1.9 Guidebook Organization

The Guidebook is organized into five parts:

- **SB X7-7 Agricultural Water Management Plan Preparation Guidance** – includes specific guidance for addressing SB X7-7 AWMP requirements as identified in the California Water Code (CWC)
- **AWMC MOU Process Guidance** – includes SB X7-7 compliance guidance for members of the AWMC who submit plans under the AWMC MOU process
- **USBR CVPIA/RRA Process Guidance** - includes SB X7-7 compliance guidance for agricultural water suppliers that submit plans to the USBR under the CVPIA/RRA process
- **AWMP Supporting Information** –includes detailed discussions of specific subjects, supporting documents related to preparing the AWMP, Agricultural Water Measurement Regulation compliance and documentation, Aggregated Farm-Gate Delivery Reporting Format for Article 2 (Rev.6-20-12), and text of SB X7-7 and Regulation.
- **AWMP Template** – includes a template with recommended tables that can be used to prepare an SB X7-7-compliant Agricultural Water Management Plan (AWMP)

## 1.10 Guidebook Objectives

The objectives of this guidebook are to assist agricultural water suppliers in preparing their AWMP and to meet the requirements of SB X7-7, the Water Conservation Act of 2009. This guidebook is not a rule; use of this guidebook is not required, but it is encouraged.

The Guidebook objectives focus on providing information on how to complete the required components for preparing an AWMP in a manner that facilitates the water management planning process.

Specifically, the objectives are to:

- Inform water suppliers of AWMP required elements identified in the California Water Code (CWC).
- Describe the relationship between SB X7-7 and Agriculture Water Measurement regulations and reporting requirements (Title 23 California Code of Regulations [CCR], Section 597 et seq.).
- Provide guidance to demonstrate compliance with SB X7-7.
- Describe how to submit a completed 2012 AWMP.

This guidebook also provides details that could be helpful to agricultural water suppliers in implementing SB X7-7 and provides a clear distinction between SB X7-7 and measurement regulation requirements.

- Text in italics quote the text of the California Water Code (CWC) or California Code of Regulations (CCR). CWC and CCR Sections references are Bolded and Underlined for emphasis.
- Plain text – is used to describe/detail requirements and to recommend information that could be included in the required components/elements of the AWMP.
  - SB X7-7 required components/elements of the AWMP are explicitly identified by code section references.
  - “Recommended”, “optional”, “suggested”, and other qualifiers are used to identify additional information that could be included, but is not required by SB X7-7.

**Table A** summarizes the relationship between SB X7-7 AWMP required contents/elements, the AWMC MOU water management plan requirements, and USBR water conservation plan requirements. **Table B** shows applicable documentation required.

See Frequently Asked Questions (FAQs) Section of this Guidebook for further information. See Chapter 6.4, Figure 1 for an overview of the AWMP and Figure 2 for agricultural water measurement compliance processes. Chapter 6.5 compares the entire agricultural water supplier planning requirements among the SB X7-7, Agricultural Water Management Council’s MOU, and the Bureau of Reclamation (USBR) plans.

**Table A. Comparison of California Water Code AWMP Required Elements with  
AWMC MOU and USBR Plan Requirements**

<b>Required Element</b>	<b>CA Water Code §</b>	<b>AMWC 1999 MOU<sup>1</sup></b>	<b>USBR CVPIA and RRA<sup>2</sup></b>
<b>Coordination</b>	<i>N/A</i>	Step 1	<b>N/A</b>
<b>Plan Adoption</b>	<i>10821</i>	Step 7	Section 8
<b>Previous Water Management Activities</b>	<i>10826 (d)</i>	Step 4	<b>N/A</b>
<b>Agricultural Water Supplier Service Area</b>	<i>10826 (a)</i>	Step 2	Section 1
<b>Inventory of Water Supplies</b>	<i>10826 (b)</i>	Step 3A-C	Section 2
<b>Source Water Quality Monitoring Practices</b>	<i>10826 (b) (4)</i>	Step 3D	Section 2D
<b>Water Uses</b>	<i>10826 (b) (5)</i>	Step 3E	Section 2E
<b>Drainage from the water supplier's surface area</b>	<i>10826 (b) (6)</i>	Step 3F	Section 2F
<b>Water accounting</b>	<i>10826 (b) (7)</i>	Step 3G	Section 2G
<b>Water Supply Reliability</b>	<i>10826 (b) (8)</i>	Step 3H	<b>N/A</b>
<b>Effects of Climate Change on Future Supply</b>	<i>10826 (c)</i>	<b>N/A</b>	<b>N/A</b>
<b>EWMPs</b>	<i>10826(e) &amp; 10608.48(b)-(c)</i>	Step 5	Section 3
<b>Regional Plan</b>	<i>10829</i>	<b>N/A</b>	Section 7

Notes:

1. Step 6: "Develop schedules, budgets, and projected results" is unique to the MOU.
2. Sections 4-7 are unique to USBR's process (Section 4: BMPs for Urban Contractors; Section 5: Plan Implementation; Section 6: Exemption Process)

**Table B** (Additional Documentation), below, summarizes the applicable requirements for the different options:

<b>Table B. Additional Documentation</b>				
<b>Required by</b>	<b>Requirement details</b>	<b>SB X7-7 Plan (Option 1)</b>	<b>AWMC MOU Plan (Option 2)</b>	<b>CVPIA/RRA Plan (Option 3)</b>
<b>Documentation Required as a Part of the Plan</b>				
Required by SB X7-7 (see Chapter 2.7)	Table 49- Report of EWMPs		Required	These suppliers may meet this requirement by submitting CVPIA/RRA Plan
	Table 51- Non-Implemented EWMPs		Required	
Required by Regulation, where applicable (see Chapter 2.8)	Attachment A- Legal Certification		Required	
	Attachment B- Engineer Certification		Required	
	Attachment C- Description of Best Professional Practices		Required	
	Attachment D- Water Measurement Conversion		Required	
	Attachment E- Correction Action		Required	
<b>Documentation Required for Loan and Grant Eligibility (if all water supplier has not implemented all the EWMPs)</b>				
Required by SB X7-7 (see Chapter 2.7)	Table 51- Non-Implemented EWMPs		Required if any of the CWC 10608.48(c) conditional EWMPs is not locally cost effective or technically feasible.	
	Table 50- Schedule to Implement 10608.48 EWMPs		Required if all of the CWC 10608.48 EWMPs have not been implemented.	

DWR Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan is posted on DWR website at:

<http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a6/>

## **2 SB X7-7 Agricultural Water Management Plan Preparation Guidance**

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This chapter of the Guidebook contains specific instructions for completing an AWMP based on the requirements identified in SB X7-7. It groups the requirements by topic and presents the topics in the order in which an agricultural water supplier may consider for preparation of its AWMP. Each section includes the pertinent legislative reference, what is required for compliance, and tables the water supplier may consider including in its AWMP to provide the information. Optional information an agricultural water supplier may include in its AWMP, but that is not necessarily required by legislation, is also identified.

In preparing an AWMP, the agricultural water supplier should consider not only what is legally required, but also what is needed to make it a comprehensive longer-term water supply planning document. There are AWMP required components/elements that must be included in an AWMP that are determined by statutes. An agricultural water supplier has the discretion to present the information for required components/elements in whatever manner the agricultural water supplier chooses.

It is recommended that agricultural water suppliers with mutual needs work together to develop agreements/MOUs to prepare and/or implement regional AWMPs; however, regional agreements or AWMPs are not required. If a regional approach to AWMP is elected, the AWMP should describe mutual agreements/MOU with other signatories or agencies, and should meet or exceed the requirements of SB X7-7.

### **AWMP Organization**

DWR recommends, but does not require, the use of the general organizational outline, below, to prepare an AWMP. The AWMP Template in Appendix A of this Guidebook uses the same organization. The AWMP required components/elements within each section are included within the detailed Guidebook outline. Pertinent AWMP Template Recommended Tables are referenced where applicable.

Chapter 2 is organized consistent with the AWMP Template outline and as follows:

#### **2.1 Plan Preparation and Adoption**

- A. Description of Previous Water Management Activities
- B. Coordination Activities
- C. Plan Adoption and Submittal
- D. Plan Implementation

#### **2.2 Description of the Agricultural Water Supplier and Service Area**

- A. Physical Characteristics
- B. Operational Characteristics

### **2.3 Description of the Quantity of Water Uses of the Agricultural Water Supplier**

- A. Agriculture Water Use
- B. Environmental Water Use
- C. Recreational Water Use
- D. Municipal and Industrial Use
- E. Groundwater Recharge Use
- F. Transfer and Exchange Use
- G. Other Water Use
- H. Optional – Projected Water Use

### **2.4 Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier**

- A. Water Supply Quantity
- B. Water Supply Quality
- C. Water Quality Monitoring Practices

### **2.5 Water Accounting and Water Supply Reliability**

- A. Quantifying the Water Supplier's Water Supplies
- B. Quantification of Water Uses
- C. Overall Water Budget
- D. Water Supply Reliability
- E. Optional – Future Water Supply

### **2.6 Climate Change**

### **2.7 Water Use Efficiency Information**

- A. EWMP Implementation and Reporting
- B. Documentation For Non-Implemented EWMPs

### **2.8 Supporting Documentation**

- A. Legal Certification and Apportionment Required for Water Measurement
- B. Engineer Certification and Apportionment Required for Water Measurement
- C. Description of Water Measurement Best Management Practices
- D. Documentation of Water Measurement Conversion to Volume
- E. Device Corrective Action Plan Required for Water Measurement
- F. Farm-gate Measurement and Device Accuracy Compliance (Optional)

### **AWMC MOU, CVPIA, or RRA Water Plans for AWMP Compliance**

As noted earlier, water management/conservation plans prepared in compliance with the AWMC MOU, CVPIA, or RRA may be submitted for compliance with AWMP requirements so long as certain criteria are

met. Refer to the “Plan Submittal Requirements - What to submit” discussion above and Chapters 3 and 4 of this Guidebook for details on required information.

### **Water Measurement Documentation**

Certain Agricultural Water Measurement Regulation documentation is required as part of the AWMP or Options 2 and 3 submittal process (**CCR §597, et seq.**). Chapter 5 of this Guidebook details these requirements and supporting documentation or attachments that must accompany the AWMP, AWMC-MOU Water Management Plan, or USBR Water Conservation Plan submitted to DWR for compliance with SB X7-7.

### **AWMP Checklist**

A checklist is included in Chapter 6.1 that can be used to ensure a water supplier’s AWMP meets all the pertinent requirements.

## 2.1 Plan Preparation and Adoption

This section of the AWMP includes specific information on how the AWMP was prepared, and coordinated with other agencies and the public, how/when it was adopted, and submittal requirements. Although the SB X7-7 does not require the agricultural water supplier to present the following information in this format, it does require compliance with the elements identified below. The documentation of compliance with these elements in the AWMP ensures that the AWMP has been prepared, adopted, and submitted in accordance with the SB X7-7 (see AWMP Template Section I, Recommended Table 1).

### A. Description of Previous Water Management Activities (§10826 (d)).

Under this element, it is suggested that the agricultural water supplier state the water management plan name, program under which the plan was developed, adoption date by the water supplier, approval or acceptance date (by the AWMC or USBR, respectively), management agency and representative, and other pertinent information, including any amendments and/or revision dates.

### B. Coordination Activities

#### 1. Notification of AWMP Preparation

*“An agricultural water supplier is required to notify each city or county within which supplier provides water supplies that the agricultural water supplier will be preparing or amending a plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice” (SB X7-7 §10821(a)).*

As stated above, the law does not specify how much advance time is required for notification to cities or counties. It does not require notification to any other agency(s) and does not require that comments from any city, county, or other agency must be solicited and considered.

To show compliance with Notification of AWMP Preparation, the agricultural water supplier should provide supporting documentation in the AWMP. This could include a list of contacted cities and counties, copies of the notice of preparation, and copies of any other records demonstrating compliance. If the agricultural water supplier chooses to also notify other agencies, a list of these agencies should be provided, but is not required.

If the agricultural water supplier chooses to consult with and obtain comments from contacted city(s), county(s), or any other agencies, a list of each agency and organization contacted or involved in the preparation, discussion, or coordination of the AWMP should be provided, but is not required. A description of the coordination process, outreach materials used, and any substantial comments that affected development of the AWMP and if they were incorporated would also be beneficial, but is not required.

## 2. Public Participation

*“Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan” (SB X7-7 10841).*

Government Code §6066 states that:

*“Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.”*

To demonstrate compliance with the above listed requirements, publicly-owned agricultural water suppliers can provide copies of the public notifications on the hearing time and place, and copies of the notice of the availability of the AWMP (or amendment to the AWMP) for public review. A description of any substantial public comments that affected adoption or amendment of the AWMP would also be beneficial, but is not required.

To demonstrate compliance with the above listed requirements, privately-owned agricultural water suppliers should provide documentation of the process used to comply with the reasonably equivalent notice of AWMP or amendment to the AWMP availability for public review within their service area and reasonably equivalent opportunity for the public to provide input on the AWMP. This could include information such as copies of notices in the local newspaper, website postings, copies of flyers/letters sent out, a list of mailings, copies of a public meeting notification, or other mechanisms used to notify the public within their service area and to provide opportunity for input on the AWMP. A description of any substantial public comments that affect adoption or amendment of the AWMP would also be beneficial, but is not required.

It is recommended, but not required, that copies of a proposed AWMP be submitted to local, regional, state, and federal agencies; special districts; land use agencies; and the public (business, environmental, social) to notify interested parties that an AWMP is under preparation and to allow opportunity for their input into the plan prior to notification of a public hearing or similar public review.

Incorporation of comments from the Notification and Public Participation processes is not required. However, because this is a planning document, addressing the potential issues in the AWMP may assist in facilitating implementation and provide a stronger basis or rationale for

decisions.

## **C. Plan Adoption and Submittal**

Specific requirements for AWMP adoption and submittal are contained in the CWC.

### **1. Plan Adoption**

*“After the public hearing, the plan shall be adopted as prepared or as modified during or after the hearing.” (SB X7-7 §10841)*

*“Amendments to, or changes in the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840).” (SB X7-7 §10820(b))*

It is recommended that the agricultural water supplier include a copy of the Resolution of Plan Adoption in the AWMP to show compliance with Plan Adoption and Submittal requirements.

### **2. Plan Submittal**

*“An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes.” (SB X7-7 §10843(a))*

Within 30 days of adoption, the agricultural water supplier is required to submit copies of the AWMP, amendments, or changes to the AWMP to the following entities (SB X7-7 §10843(b)):

*“The DWR.*

*Any city, county, or city and county within which the agricultural water supplier provides water supplies.*

*Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.*

*Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.*

*Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.*

*The California State Library.*

*Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.”*

The agricultural water supplier could document compliance with this requirement by including a list of entities receiving the submittal and the dates of mailing or other form of submittal.

Refer to Chapter 6.2 of this Guidebook for details on submittal of the AWMP to DWR and the California State Library.

### 3. Plan Availability

*“Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier’s Internet Web site (SB X7-7 [§10844 \(a\)](#)). An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department’s Internet Web site.” (SB X7-7 [§10844 \(b\)](#))*

The agricultural water supplier could document compliance with this requirement by listing the website address and link on their Internet Web site, along with the date of posting, in the AWMP. Alternatively, if the agricultural water supplier does not have an Internet Web site, they can document submittal of the electronic copy to DWR to demonstrate compliance with this requirement. Electronic copies sent to the DWR should preferably be in Adobe™ pdf or MS-Word™ format.

## D. Plan Implementation

### 1. Description of Schedule of Implementation

*“An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier” (SB X7-7 [§10842](#)).*

Other than July 31, 2012 implementation timeframe, SB X7-7 does not require a general implementation schedule as part of the AWMP. However, the Agricultural Water Measurement Regulation requires that certain schedule information be included in the AWMP if a water measurement corrective action plan is required. SB X7-7 also requires information on which EWMPs are implemented and which EWMPs are scheduled for implementation.

It is recommended that the schedule for implementation of the AWMP, including any corrective action plan required by the Agricultural Water Measurement Regulation, be described here. It is also recommended that a detailed schedule for implementation of each EWMP be included in Section VII of the AWMP (see AWMP Template Recommended Tables 50).

## 2.2 Description of the Agricultural Water Supplier and Service Area

The intent of this section is to describe the general characteristics of the water supplier and its service area in order to form a basis for evaluating structural or operational improvements as well as to provide the basic information about physical and operational aspects that may affect water management.

This section is also an opportunity to provide some background information such as the agricultural water supplier date of formation, sources of water supply (such as Central Valley Project (CVP), State Water Project (SWP), local surface or groundwater), or any other pertinent information.

### A. Physical Characteristics

#### 1. Size of the service area (§10826 (a)(1))

While the water supplier is required to describe the size of the service area in the AWMP, details regarding how to describe the size are not specified in the CWC requirements. To facilitate planning and analysis, it is suggested that, at a minimum, the water supplier include a calculation of:

##### a) Gross acreage within the service area boundary -

Expected changes to the service area size or boundaries should also be identified. If there are special management or usage areas, reporting the sizes of each area would also assist the agricultural water supplier in water use efficiency determination, management, and planning. For instance, special management or usage areas might be identified if water supplies are typically distributed on a rotational basis. Reporting the acreage of each sub-area within the service area would assist in water use calculations and efficient management.

##### b) Average irrigated acres per year -

If irrigated acreage widely varies from year to year, an average of the past five years would be applicable. If there are special management or usage areas, reporting average irrigated acres within each area would also assist the agricultural water supplier in water use management and planning. (see AWMP Template Recommended Tables 2 and 3)

#### 2. Location of the service area and water management facilities (§10826 (a)(2))

A description of the location of the service area and water management facilities is required. However, the manner in which the water supplier service area and water management facilities are described is at the discretion of the water supplier. To facilitate planning and analysis, it is suggested that, at a minimum, the water supplier include in this section:

- A map of the service area showing county or other pertinent boundaries, where possible, existing water diversion(s). Planned water diversions, if applicable, should also be described and/or mapped.

- A map showing the water storage, conveyance, controls, and delivery system components within the service area such as canals, pipelines, drains, water quality testing stations, water measurements locations, pumping stations, reservoirs, and others.
- A map showing any special management or usage areas within the service area, if applicable.
- Text descriptions accompanying maps would also be beneficial. If maps are not available, a written description can be included. It is also recommended that descriptions of the supplier's facilities be included in this section as well as their location(s) on a map.

(see AWMP Template Recommended Tables 4 through 6)

### **3. Terrain and soils (§10826 (a)(3))**

A description of the terrain and soils is required. However, the manner in which the service area landscape parameters, terrain and soils, is described is at the discretion of the water supplier. It is suggested that, at a minimum, the water supplier:

- a) Describe the topography of the water supplier's service area (e.g., hilly, flat, rolling, sloping to a water course, and others).
- b) Describe the local surface drainage characteristics of the service area. Include information, if applicable, on water courses, wetlands, and direction of surface runoff and where drainage features are located. A map with labeled features and drainage directions would be beneficial.
- c) Describe the general soil classifications found in the service area and where the soils are generally located. A map showing areas of major soil types is recommended. It is also suggested that information such as erosion and runoff potential (e.g., soils hydrologic group), infiltration/percolation constraints (e.g., presence shallow bedrock, shallow water table, heavy soils, sandy soils and other characteristics), and other irrigation management information for the soils types be included in the description.

The Natural Resources Conservation Service (NRCS) provides general soils maps that may be a useful tool. Soils classification and water management properties information can be obtained at: <http://soils.usda.gov/>. The Web Soil Survey tool is available at: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. This tool can be used to delineate portions of the service area and calculate summary information for soils within the area.

It may also be useful to include a discussion on the potential for terrain and soil conditions to affect water operations and management within the service area. What constraints may be present? What opportunities may be present?

(see AWMP Template Recommended Table 7)

#### **4. Climate (§10826 (a)(4))**

A description of the climate is required. However, the detailed description of the service area climate is at the discretion of the water supplier. It is suggested that, at a minimum, the water supplier provide a description of the historic climate in the area:

- Average monthly and annual precipitation
- Average monthly maximum and monthly minimum precipitation, and the months in which these occur
- Average monthly maximum and minimum temperatures and the months in which these occur
- Average annual wet season (typically October through March) precipitation.

Where available, the averages should be calculated based on at least 20 years of historical data. Regardless, the years included in the average should be identified. The National Weather Service provides weather data from climatological stations throughout California and is a useful tool to describe historical climates: <http://www.wrcc.dri.edu/climsum.html>.

It is also recommended that other useful climate information be reported in order to facilitate water management and planning and in determining the overall water budget within the service area. Such information could include:

- Extreme conditions information (e.g., daily maximums and minimums, 100-year storm events, and others).
- Monthly average reference evapotranspiration (ET<sub>o</sub>) for the area(s) to facilitate future water use efficiency calculations/analysis. (Refer to DWR California Irrigation Management Information System (CIMIS) at: <http://www.cimis.water.ca.gov/cimis/welcome.jsp> for ET<sub>o</sub> information and data).

For areas within the water supplier's service area that are known or suspected to have substantially different climate conditions, a qualitative or quantitative description of the differences and how this may affect water management decisions and operations would be beneficial. Additional tables can be used to summarize climate characteristics of areas experiencing different climate characteristics. (see AWMP Template Recommended Tables 8 and 9)

## **B. Operational Characteristics**

### **1. Operating rules and regulations (§10826 (a)(5))**

A description of the operating rules and regulations is required. How they are described is at the discretion of the water supplier. It is recommended that agricultural water suppliers describe or attach a copy of their operating rules and regulations, including: water allocation policy(s); the lead time necessary for water orders and water shut-off; any policies regarding return flows and /or drainage leaving the water supplier's service area; restrictions on deliveries; and, other practices, as appropriate. (see AWMP Template Recommended Tables 10 through 12)

### **2. Water delivery measurements or calculations (§10826 (a)(6))**

A description of the water delivery measurements or calculations is required. The manner in which these are described is at the discretion of the water supplier. The intent of this section under the Agricultural Water Management Planning Act is to primarily describe the system used for determining water rate schedules and billing. The water supplier should describe its water delivery measurement program and relevant calculations (see AWMP Template Recommended Table 13). Water supplier's compliance with water measurement EWMP is discussed in Section VII of the AWMP. It is recommended that details on the water measurement system, as applicable for compliance with the Agricultural Water Measurement Regulations (refer to Chapter 5 of this Guidebook), be included in Section VIII of the AWMP.

### **3. Water rate schedules and billing (§10826 (a)(7))**

Water rate schedules and billing must be described in the AWMP. The details for describing these are at the discretion of the agricultural water supplier. It is recommended, that at a minimum, the AWMP describe:

- The basis for agricultural usage water charges and the adopted pricing structure. A copy of the water supplier's written operating rules and regulations may be used to provide this information if they describe the basis for water charges at least in part based on quantity delivered (i.e., by quantity and other factors such as acre, crop, land assessment, or other charges. The pricing structure is an EWMP that is a required element and must be reported in Section VII of the AWMP.
- The rate structure used (e.g., allocation-based, uniform, or increasing block rate).
- The billing frequency (e.g., monthly, bimonthly, annually).

(see AWMP Template Recommended Tables 14 through 16)

#### **4. Water shortage allocation policies (§10826(a)(8))**

Although the AWMP must include a description of the water shortage allocation policies, details described are at the discretion of the agricultural water supplier; what constitutes of description of the water shortage allocation policy has not been identified in SB X7-7. It is recommended that if the water supplier has a Water Shortage Allocation Policy, the agricultural water supplier attach a copy of the policy to the AWMP in Section VIII of the AWMP and refer to the attachment in this section. If the supplier does not have such a policy, the agricultural water supplier should describe how reduced water supplies, including hardship water, are allocated.

It is also recommended that a description of water supplier policies that address wasteful use of agricultural water be included, along with a description of enforcement methods, if applicable.

If the water supplier has a Water Shortage Contingency Plan, it is recommended that this is referenced here and a copy attached to the AWMP in Section VIII. If there is no water shortage contingency plan, it is recommended that a description of actions that will be taken by the agricultural water supplier, in the event of a catastrophic reduction in water supplies, be included in the AWMP. This Water Shortage Contingency Plan should include an assessment of how responding to water shortages affects revenues and expenditures, and how the agricultural water supplier will address these potential effects.

(see AWMP Template Recommended Tables 17 and 18)

#### **C. Basis For Reporting Water Quantities**

SB X7-7 requires a description of the quantities of specific types of water uses and supply sources in the AWMP (SB X7-7 §10826 (b). SB X7-7 also requires tabulating water uses and an overall water budget under §10826 (b)(7). Details on what to include in the descriptions are discussed in Chapters 2.3 through 2.5, below. However, in order to provide a meaningful description, water quantities should be reported on a consistent basis. This section of an AWMP should include a detailed description of basis for reporting water quantities: what year(s) are used to describe the water quantities and if there were any special conditions relevant to the determination of quantities (e.g., excessively wet year, water measurement system only partially implemented, couldn't measure a particular source or use, or others).

A Representative Year and/or the Plan Cycle year can be used as a basis for determining water quantities; however, the same basis (year(s)) should be used to report water quantities in all tables/descriptions in Sections III through IV of the AWMP (detailed below in Chapter 2.3 through 2.5 of this Guidebook). The time frame used for reporting (e.g., Water Year months, calendar year, or other) should also be specified. For example, 2012 data may be based on the water year (from October 2011 to September 2012 or from November 2011 to October 2012) or irrigation season/non-irrigation season data.

It is recommended that quantities be reported based on the Plan Cycle year; data should be reported for the past five years (for 2012 plans one year is the recommended minimum and up to five years, if data is available). If a Representative Year is used to describe and tabulate water uses and supplies, it must be defined and the year(s) it is based on identified. The Representative Year can be a 'normal' year or an average of years. The rationale/description of what constitutes a Representative Year should be included in this section, if applicable (see AWMP Template Recommended Table 19).

If water uses are estimated instead of measured, the AWMP should also provide justification and documentation of calculations and data used for the estimation. This information should be summarized in the discussion pertaining to quantification of the specific supplies and/or uses, with details included as an attachment in Section VIII.

## 2.3 Description of the Quantity of Water Uses of the Agricultural Water Supplier (Demands)

This section describes the agricultural water system uses for agricultural, environmental, recreational, municipal and industrial, groundwater recharge, transfers and exchanges, and other water uses within the agricultural water supplier's service area.

SB X7-7 **§10826 (b)(5)** requires that the AWMP include a description of “*Water uses within the agricultural water supplier's service area, including all of the following:*

- (A) Agricultural.*
- (B) Environmental.*
- (C) Recreational.*
- (D) Municipal and industrial.*
- (E) Groundwater recharge.*
- (F) Transfers and exchanges.*
- (G) Other water uses.”*

SB X7-7 **§10826 (b)** requires a description of the quantity of all underlying items, including the water uses identified above. The legislation also does not require a specific method for quantifying water uses under this element. In this section, the Guidebook provides a reasonable process and recommended level of detail to assist the agricultural water supplier in preparing an AWMP that can be used for water management planning and for addressing **§10826 (b)(7)** requirements for tabulating water uses and an overall water budget. If available, it is also recommended that quantities of water used from each water source within the service area, for each water use type be reported, along with additional information that can be used in determining the overall water budget. This would allow for greater flexibility in water management planning.

For all water use types listed above, the law does not specify quantification methods, timescale, or other means by which the supplier must describe water used. However, in order to provide a meaningful and consistent basis for water accounting in accordance with **§10826 (b)(7)**, it is recommended that:

- Information be reported using the same year(s) identified in Section II.C of the AWMP (Basis for Determining Water Quantities) for all water use types as listed under **§10826 (b)(5)**.
- Monthly or bi-monthly water usage data be provided for each water use type.
- Data for each water use type may be presented in a similar format as shown in the AWMP Template Recommended Tables 20 through 29. Depending upon the number of locations or complexity regarding each type of water use in the service area, this table can be expanded or summarized as necessary. For instance, for a particular water use type, if the same amount of water is required each year and/or each month, it would not provide more information to report monthly use for the past five years; reporting the consistent demand quantity and a notation to that effect would be sufficient.

If special management or usage areas have been identified in Section II of AWMP, it would further assist in water management planning to provide a table of water use estimates for each water use type, delineating the water use in each applicable area.

### **A. Agriculture Water Use (§10826 (b)(5)(A))**

A description of agricultural water use must be included in the AWMP. The following lists recommended information to be included in the AWMP:

- Tabulation of water delivered to all of the agricultural water supplier's agricultural customers within the service area
- To the extent available, an estimation of the private groundwater used to meet agricultural water use in the service area
- To the extent available, an estimation of other water sources used to meet agricultural water use demands in the service area from sources such as recycled water, precipitation, return flows, and others.

(see AWMP Template Recommended Table 20)

It is also recommended that the AWMP describe the type and acreage of crops grown in the service area in order to provide data that may be used in tabulating water uses and calculating the water budget (see Chapter 2.5 and Section V of Appendix A, in this Guidebook). Recommended additional data include:

- Types and acreage of crops grown within the service area
- At least seasonal evapotranspiration amounts for each crop type
- Water required for cultural practices (e.g., climate control, seedbed preparation)
- The leaching requirement for each crop/soil type to maintain the salt balance in the soil
- The types of irrigation systems used for each crop
- Amount of irrigated acres
- Alternate cropping systems that may affect water use each year (e.g., intercropping)

DWR's CIMIS database is a useful tool for obtaining crop ET in your area:  
<http://www.cimis.water.ca.gov/cimis/info.jsp>

(see AWMP Template Recommended Tables 21 through 23)

## **B. Environmental Water Use (§10826 (b)(5)(B))**

A description of environmental water uses must be included in the AWMP. It is recommended that the agricultural water supplier describe what environmental resources (e.g., wetlands, vernal pools, streams, wildlife refuges) are located within their service area, which types and areas actively receive water supplies from the agricultural supplier, and what, if any, are the dedicated/jurisdictional amounts the supplier must deliver. Where possible, include a distinction between supplier water and other water used to support environmental resources. If no environmental use demands are to be accounted for, a simple statement indicating such would be sufficient. (see AWMP Template Recommended Table 24)

## **C. Recreational Water Use (§10826 (b)(5)(C))**

A description of recreational uses must be included in the AWMP. It is recommended that the agricultural water supplier describe what recreational uses in the service area are supported by their water supplies and quantify the amount of water to maintain these uses/facilities. These uses could be demands such as releases to provide recreational flows or the amount of water that must be left in reservoirs to provide boating access. Any applicable jurisdictional requirements should also be identified. If no recreational uses are to be accounted for, a simple statement indicating such would be sufficient. (see AWMP Template Recommended Table 25)

## **D. Municipal and Industrial Use (§10826 (b)(5)(D))**

A description of municipal and industrial uses must be included in the AWMP. It is recommended that the agricultural water supplier describe what municipal and industrial uses in the service area receive water from the agricultural water supplier, as well as how much water is typically used by these entities. If no municipal or industrial uses are supplied within the service area, a simple statement indicating such would be sufficient. (see AWMP Template Recommended Table 26)

## **E. Groundwater Recharge Use (§10826 (b)(5)(E))**

A description of groundwater recharge uses must be included in the AWMP. It is recommended that the agricultural water supplier describe, at a minimum, the amount of water used for groundwater recharge annually (on a monthly or bimonthly basis, if available), method of recharge, location of recharge, and the amount of any recharge water applied for conjunctive water uses. Any jurisdictional or agreement-based recharge commitments should also be identified and quantified. If no groundwater recharge is to be accounted for, a simple statement indicating such would be sufficient.

If percolating irrigation water would contribute to groundwater recharge in the overall water balance, do not include this as a recharge use in the description of Groundwater Recharge Use, unless this excess irrigation water was applied specifically for groundwater recharge. (see AWMP Template Recommended Table 27)

Although not required by this legislation, if the agricultural water supplier contributes to groundwater recharge outside of the service area, it is recommended that this water use also be included in the AWMP.

#### **F. Transfer and Exchange Use (§10826 (b)(5)(F))**

A description of transfers and exchanges water uses must be included in the AWMP. It is recommended that the agricultural water supplier describe, at a minimum, the annual amount of water that is transferred and/or exchanged into or out of the water supplier's service area (if available, a monthly or bimonthly basis is preferred). Any typical water transactions or agreements should be described and quantified. The AWMP should include a description of to whom/where the water is transferred/exchanged; how often this typically occurs; and, the typical quantity and source of water.

If transactions and/or exchanges do not occur on a regular basis, the likelihood of transactions and/or exchanges should be described and, if possible, quantified. If no transactions or trades occur or are part of any agreement, a simple statement indicating such would be sufficient.

(see AWMP Template Recommended Table 28)

#### **G. Other Water Use (§10826 (b)(5)(G))**

The agricultural water supplier must describe any other water uses in their service area. It is recommended that, at a minimum, the other water uses should be identified and the amount of water that is used for these uses are annually quantified (if available, a monthly or bimonthly basis is preferred). Other water uses could include uses such as road dust abatement; facility/structure cleaning, flushing, operations, and management; and other potential demands on water supplies. If there are no other water uses, a simple statement of such would suffice. (see AWMP Template Recommended Table 29)

#### **H. Optional – Projected Water Use**

For water management planning, it is advantageous to estimate future water use demands. It is therefore recommended that the agricultural water supplier include in the AWMP a description any anticipated changes or trends in water demand within their service area. This could include changes in water use related to:

- Changes in crop types (different crop water use requirements than current conditions);
- Expected market fluctuations that would affect the type and amount of crops grown;
- Increased water use efficiency that would reduce water uses through reduced non-recoverable water;

- Increased energy costs that would potentially reduce the amount of water used from higher energy sources (e.g., pumped groundwater); and/or,
- Anticipated changes in land use (e.g., conversion of agricultural land to developed land).

## 2.4 Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier

The intent of this section is to describe the sources of water available to the agricultural water supplier. It describes the quantity and quality of each water source including surface water, groundwater, and other sources of water supplies. This section also provides information on source water quality monitoring practices.

### A. Water Supply Quantity

SB X7-7 §10826 requires that the AWMP:

*“(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*

*(1) Surface water supply.*

*(2) Groundwater supply.*

*(3) Other water supplies.*

*(4) Source water quality monitoring practices.*

*(5) Water uses within the agricultural water supplier’s service area...*

*(6) Drainage from the water supplier’s service area.”*

[Note: Item (5) is addressed in Chapter 2.3 of this Guidebook.]

The legislation does not specify the mechanisms or level of detail that would satisfy requirements for describing the quantity of water supplies. In this section, the Guidebook provides a reasonable process and recommended level of detail to assist the agricultural water supplier in preparing an AWMP that can be used for water management planning and for addressing §10826 (b) and §10826 (b)(7) requirements.

For each water source type, it is recommended that the description include discussions on origin (there may be multiple origins for a particular water source—for example, groundwater supplies can be obtained from different groundwater basins), customers, and use limitations of each water supply source.

If wholesale water supplies are received from another supplier or provided to another water user, this should be described for each water supply source. For water obtained from wholesale sources, the agricultural water supplier can include a reference to the wholesalers UWMP/AWMP and a brief summary of the water supply’s origin.

The AWMP must include estimated or calculated quantities of water supplies for each of the three major categories of water supply sources used within the service area (surface water, groundwater,

and 'other' water), as well as for drainage water. The same basis for determining water quantities identified in AWMP Template Section II.C. should be used to describe all water supply quantities.

If values are estimated, the AWMP should provide justification and documentation of calculations and data used for the estimation. It is also recommended that monthly or bi-monthly amount of water delivered be reported for the past five years (minimum) (one year for 2012 AWMPs). Deliveries from each water supply source could be presented in a manner similar to the recommended tables in Appendix A – Recommended AWMP Template. Any restrictions or operational constraints associated with the supplier's water supplies should be noted.

A discussion or description of the average year water supplies and projects to increase water supplies is also recommended. Supply reliability issues would be discussed in AWMP Section V.

Depending upon the number or complexity of each type of water use in the service area, AWMP Template recommended tables can be expanded or summarized as necessary. For instance, for surface waters, if the same amount of water is allocated each year and/or each month, it would not provide more information to report monthly supplies for the past five years; a simple notation of the monthly or yearly supply would be sufficient. For groundwater, if the annual available water is not used, this may result in 'banked' water that could be used in a subsequent year. This would require adjustment of recommended tables to present groundwater supplies in a meaningful fashion. Additionally, surface water recharge of groundwater supplies may also increase the available groundwater supply from year to year.

If special management or usage areas have been identified Section II of the AWMP, it could be beneficial to provide a table of water supply estimates for each water supply source available to each applicable area in order to further assist in water management planning.

## **1. Surface Water Supply (§10826 (b)(1))**

To address the legislative requirements for a description of surface water supply quantities, in addition to the information in the AWMP Template Recommended Tables 30 and 31, it is recommended that the AWMP:

- a) Briefly describe the total amounts and types of each of the water supplier's contracted surface water supplies (i.e., CVP Class I water contract for agriculture, SWP water contract for agriculture, exchange contract). Include the type of contract, the contractor, and the maximum allowable quantities available under the contract.
- b) Briefly describe the total amounts of surface water rights including pre-1914 water rights. Include the name of the surface water source, location of diversion(s), annual maximum diversion, monthly maximum diversion, diversion rate, and other water rights limitations on use.

For both contracted and water rights surface water supplies, it is recommended that the AWMP:

- c) Provide the annual amount of water received from each source for representative year or 2012 and Plan Cycle years, if available.
- d) Describe any restrictions on the time and amount of diversion.
- e) Describe any anticipated changes in the water supplier's surface water supplies during the next five years.

## **2. Groundwater Supply (§10826 (b)(2))**

In addition to the above recommended information, to address the legislative requirements for a description of the groundwater supplies, it is suggested that the AWMP:

- a) Identify the groundwater basin(s) directly pumped by the agricultural water supplier to meet demands. Briefly describe the basin(s) characteristics and total available groundwater supplies. (see AWMP Template Recommended Table 32)
- b) Identify the groundwater basin(s) underlying the service area that may be privately used by individual customers to meet water use demands if different from the water supplier's basins. Briefly describe the basin(s) characteristics and total available groundwater supplies within the service area/usage area.
- c) Provide a map showing the location of the agricultural water supplier's wells and groundwater recharge areas, if applicable.

For managed groundwater basins, attach a copy of the management plan or provide an electronic copy. (see AWMP Template Recommended Table 33)

If groundwater from a wholesaler is used to meet demands:

- d) Provide a brief description of the groundwater basin and supplies to the agricultural water supplier.
- e) Estimate the annual quantity of groundwater pumped by the agricultural water supplier. A table similar to AWMP Template Recommended Table 34 can be used to provide this information. Provide the documentation and rationale for the method used to estimate groundwater water supplies. While a description of the quantity of groundwater pumped by private sources is not required, it is recommended for calculating the water budget in Section V. An estimate of private groundwater supplies should also be included in AWMP Template Recommended Table 34.
- f) Describe whether there were limitations or challenges obtaining groundwater during time period reported in this AWMP to indicate the "sufficiency" of groundwater pumped. A summary of restrictions on groundwater supplies can included in AWMP Template Recommended Table 31.

If the water supplier operates a conjunctive use program, describe this program (see Groundwater Recharge Program, below). Provide a description of any changes or expansions planned for the groundwater supply.

Helpful information necessary to describe ground water basins can be found in California DWR Bulletin 118: <http://www.water.ca.gov/groundwater/bulletin118/update2003.cfm>

Bulletin 118 can be used to identify the basin(s) that underlie the service area and their size, usable capacity, and safe yield. In a few cases, service areas overlie more than one groundwater basin. This bulletin describes the general boundaries of each basin and indicates if there is evidence of overdraft (drawdown in excess of safe yield).

Information regarding groundwater basins is also available from the California Statewide Groundwater Elevation Monitoring (CASGEM) program developed by DWR. The intent of the CASGEM program is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's alluvial groundwater basins. This information can be used to further describe the groundwater basin(s) and provide information related to potential supply conditions (e.g., lowering water level trends may indicate a declining groundwater supply). For further information, see: <http://www.water.ca.gov/groundwater/casgem/>

### **3. Other Water Supplies (§10826 (b)(3))**

To address the legislative requirements for a description of the other water supplies, any long-term water supplies not described above (e.g., recycled water, transfer agreements, desalinated water, stormwater, and any other source water the water supplier considered part of the agricultural water supplier's water supply "portfolio") must be described and the quantity of supplies must be reported in the AWMP. It is recommended that the monthly and annual supply quantities be reported in the AWMP. For discussion of water transfers and exchanges, both short- and long- term agreements and opportunities should be considered and discussed. Quantities of "other" water supplies could be included in a table similar to AWMP Template Recommended Table 30. Restrictions on use can be included in AWMP Template Recommended Table 31.

### **4. Drainage From the Water Supplier's Surface Area (§10826 (b)(6))**

A description of the quantity of agricultural surface drainage from the water supplier's service area is required. It is recommended that a calculation or estimation of at least the annual volume of drainage from the service area be reported in the AWMP. The AWMP should also identify where surface and subsurface drainage goes (e.g., to wildlife refuge or other wildlife habitat, beneficial reuse within the service area, discharge to a river or other water course, another water service area, a groundwater aquifer, a saline sink, and/or evaporation ponds). If drainage leaves the service area and is reused, the discharge location and quantity should be identified. A description of any use limitations (e.g., capture and return is not feasible, water quality constraints for irrigation use, and others), should also be discussed. (see AWMP Template Recommended Tables 31 and 35)

Also see the SWRCB's Irrigated Lands Regulatory Program regarding the protection of receiving waters from agricultural water discharges:

[http://www.swrcb.ca.gov/water\\_issues/programs/agriculture/](http://www.swrcb.ca.gov/water_issues/programs/agriculture/)

## B. Water Supply Quality

SB X7-7 **§10826** requires that the AWMP:

*“(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*

*(1) Surface water supply.*

*(2) Groundwater supply.*

*(3) Other water supplies.*

*(4) Source water quality monitoring practices”*

The legislation does not specify the mechanisms or level of detail that would satisfy requirements for describing the quality of water supplies. In this section, the Guidebook provides a reasonable process and recommended level of detail to assist the agricultural water supplier in preparing an AWMP that can be used for water management planning.

The AWMP must also include a description of the source water quality. It is recommended that, at a minimum, average values and the range of values be reported for water delivered under the current operational system (i.e., if water quality improvements have been implemented, report only those water quality data for the period following the improvements).

It is also recommended that the AWMP include a discussion on whether or not water quality from water supplies would constrain their uses. The AWMP can include an evaluation on the ability of the agricultural water supplier's supplies to support the uses identified in Chapter 2.3 of this Guidebook. Information on applicable water quality criteria/goals for various use categories can be found at: [http://www.waterboards.ca.gov/water\\_issues/programs/water\\_quality\\_goals/](http://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/). It is also recommended that any planned improvements for water quality be identified in the AWMP.

If extensive information is available, tables and reports on water quality can be included as an attachment or appendix with a brief summary in the AWMP main body. Where quantified information is not available, a qualitative description of water quality must be provided.

If water quality monitoring of water supply sources has been conducted by the agricultural water supplier or their wholesaler, the monitoring program must be described in the AWMP.

## 1. Surface Water Supply (§10826 (b)(1))

A description of the surface water supply quality is required. If measured water quality is available, follow the general recommendations listed above. A table similar to AWMP Template Recommended Table 36 can be used to provide this information. If data is not available, it is recommended that the AWMP satisfy this requirement by, at a minimum, identifying:

- a) Potential or known water quality conditions as described in the Regional Basin Plan for the surface water source
- b) If the surface water source is listed as impaired on the 2010 303(d) list, and if so, for what pollutants (refer to [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml) for the 2010 303(d) list)
- c) If the surface water source is subject to a Total Maximum Daily Load (TMDL), and if so, for what pollutants (refer to [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/for\\_applicable TMDLs within the agricultural supplier's regional basin](http://www.waterboards.ca.gov/water_issues/programs/tmdl/for_applicable_TMDLs_within_the_agricultural_supplier's_regional_basin))
- d) Any known or suspected potential water quality constraints to its use within the service area for uses identified in Chapter 2.3 of this Guidebook.

## 2. Groundwater Supply (§10826 (b)(2))

A description of the groundwater supply quality is required. If measured water quality is available, follow the general recommendations listed above. A table similar to AWMP Template Recommended Table 36 can be used to provide this information. If data is not available, it is recommended that the AWMP satisfy this requirement by, at a minimum identifying potential or known water quality conditions for the groundwater source as described in the Regional Basin Plan, DWR Bulletin 118, and/or any applicable groundwater management plan or document. Any potential water quality constraints to its use within the service area, for the uses described in Chapter 2.3, should also be identified.

Some groundwater useful quality data may be available at:

- DWR's Water Data Library: <http://www.water.ca.gov/waterdatalibrary/>
- GAMA – Groundwater Ambient Monitoring & Assessment Program: <http://geotracker.waterboards.ca.gov/gama/>
- Groundwater Basin Assessments: [http://www.water.ca.gov/groundwater/data\\_and\\_monitoring/gw\\_basin\\_assessment.cfm](http://www.water.ca.gov/groundwater/data_and_monitoring/gw_basin_assessment.cfm)

### **3. Other Water Supplies (§10826 (b)(3))**

A description of the other water supply quality is required for all other water supply sources listed in the Water Supply Quantity sub-section. The extent of description and availability of information will depend upon the supply source. For recycled water, quality measurements should be available as required under the applicable Waste Discharge Requirement permit. This information can be reported as recommended above for surface water and groundwater. Constraints to use for these water supply sources should also be identified. A table similar to AWMP Template Recommended Table 36 can be used to provide this information.

### **4. Drainage From the Water Supplier's Surface Area (§10826 (b)(6))**

A description of the drainage water quality is required. Potential and known usage constraints associated with drainage water quality should be identified. Drainage water quality can be measured or estimated. (See AWMP Template Recommended Table 37)

## **C. Water Quality Monitoring Practices**

### **1. Source Water (§10826 (b)(4))**

The AWMP must describe the source water quality monitoring practices. This includes the water quality monitoring program for drainage water if it is used as a water supply source. Monitoring allows the agricultural water supplier to assess water quality problems that may limit the use of available source water. It is recommended that the AWMP include a description of water quality monitoring practices currently conducted for surface water and groundwater supplies including: the timing and frequency of monitoring, what constituents are analyzed, and the location of sampling/monitoring. For drainage water supplies, also include the location of whether drainage is surface or sub-surface. It is recommended that contaminants (e.g., selenium, boron, pesticides) that may limit the reuse of drainage water or that may affect discharge locations (e.g., drainage to an environmentally sensitive area) are included in the monitoring program. A description of the data evaluation process and potential mitigation of identified water quality constraints should also be included. (See AWMP Template Recommended Tables 38 and 39)

### **2. Non-Source Water Drainage (Optional)**

A description of the water quality monitoring practices of agricultural surface drainage from the water supplier's service area is not required unless it is used as a source of water supplies. However, because the quality of drainage water must be described, regardless of whether it is used as a source water supply, it is recommended, but optional that the drainage water quality monitoring program also be described in the AWMP regardless of its status as a source of water supplies. The same information recommended for describing drainage water quality as a source water should be included in this section (refer to 2.4 C.1, above). (See AWMP Template Recommended Table 39; multiple tables can be used for multiple drainages, as applicable).

Refer to the SWRCB's Irrigated Lands Regulatory Program regarding the protection of receiving waters from agricultural water discharges:

[http://www.swrcb.ca.gov/water\\_issues/programs/agriculture/](http://www.swrcb.ca.gov/water_issues/programs/agriculture/)

## 2.5 Water Accounting and Water Supply Reliability

The purpose of this section is to bring together water use and supply for an overall picture of agricultural water used and the ability of water supplies to meet water demands within the supplier's service area. SB X7-7 requires that water accounting of water supplies, water uses, and the overall water budget, along with a description of water supply reliability, be presented in the AWMP.

Information presented in AWMP sections III and IV can be used to help complete SB X7-7 requirements for quantifying water supplier's water supplies and water uses. As an overview of water supply use within the service area, annual amounts are appropriate; however, to provide more meaningful information to calculate the water budget annual amounts, additional water supply and use information (e.g., monthly/seasonal values, effective precipitation amounts, water losses, and others) should be included in this section. The additional recommended information would also provide the agricultural water supplier with some of data necessary for estimating water use.

In this section, the Guidebook provides a reasonable process and recommended level of detail to assist the agricultural water supplier accounting for water supplies, uses, and the overall water budget.

SB X7-7 **§10826** requires that the AWMP:

*“(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*

*(7) Water accounting, including all of the following:*

*(A) Quantifying the water supplier's water supplies.*

*(B) Tabulating water uses.*

*(C) Overall water budget.”*

The legislation does not specify the mechanisms or level of detail that would satisfy requirements for water accounting.

## **A. Quantifying the Water Supplier's Water Supplies (§10826 (b)(7)(A))**

The legislation requires that only the water supplier's water supplies be quantified in the AWMP. Information from AWMP section IV may be used to assist in quantifying the agricultural water supplier's water supplies. However, understanding the amount of **all** water available for meeting agricultural needs within the service area may be helpful for estimating performance of efficiency improvements, where other/additional improvements could be effective, and other water management considerations.

It is recommended that the AWMP report supply quantities as follows, along with a description of the calculations/process used to arrive at the reported quantities:

### **1. Agricultural Water Supplier Water Quantities:**

Quantification of all surface water supplies, imported to or originating within the water supplier's service area. Include current (e.g., 2012) and historic available for use within the service area. Identify conditions (e.g., drought, wet year, other) during which these amounts are available. Include return flows, if applicable. Surface water supplies would also include estimate of precipitation captured/falling in the supplier's storage facilities and surface conveyances. (see AWMP Template Recommended Table 40)

Recycled water available quantities. Include current (e.g., 2012) and historic amounts available for use. Identify conditions (e.g., drought, wet year, other) during which these amounts are available. It would also be beneficial to note if more recycled water availability could be expected in the future. (see AWMP Template Recommended Table 40)

Other water supplies. Estimate of any other water supplies that might be available (e.g., desalinated water) and include current (e.g., 2012) and historic available. Identify conditions (e.g., drought, wet year, other) during which these amounts are available. (see AWMP Template Recommended Table 40)

Quantification or estimate of groundwater that can be extracted by the water supplier, including any imported groundwater supplies. Include current (e.g., 2012) and historic minimum, average, and maximum available use. Identify conditions (e.g., drought, wet year, other) during which current and historic amounts have been/are available if supplies are limited based on operations/contract conditions. If extracted amounts are unlimited, identify the conditions under which minimum, average, and maximum amounts occur (e.g., climate, pump capacities, others). (see AWMP Template Recommended Table 41)

## 2. Other Water Sources Quantities

Estimated groundwater supplies available from non-water supplier parties (e.g., private wells) within water supplier's boundaries (if records are not available, provide an estimate and basis for estimation). (see AWMP Template Recommended Table 41)

Estimate of Effective precipitation. Estimate the annual effective precipitation, at a minimum. Not all precipitation that falls down can be used by crops; for instance, some precipitation runs off the landscape, some is evaporated, and some percolates too deep beyond the crop rooting zone. (refer to A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use: A report to the Legislature, pursuant to Section **10608.64** of the California Water Code, May 8, 2012, as a reference; this is not a required methodology to implement). Include current (e.g., 2012) and historic effective precipitation. Describe the relationship between these values and surface and groundwater supply availability. Effective precipitation will affect how much other water supplies are required to meet crop consumptive demands. (see AWMP Template Recommended Table 42)

Other water sources (if any). Identify any other sources of water supply that might be available for agricultural uses that are not included in the agricultural water supplier's portfolio and include current (e.g., 2011-2012) and historic available use. Identify conditions (e.g., drought, wet year, other) during which these amounts are available.

## B. Quantification of Water Uses (§10826 (b)(7)(B))

Information from AWMP section III may be used to assist in completing SB X7-7 requirements for tabulating water uses. As an overview of water use within the service area, annual amounts are appropriate, although monthly/seasonal amounts would better facilitate water management planning. (see AWMP Template Recommended Tables 43 and 44)

It is also recommended that current (e.g., 2012) and historic water use be reported to better understand the potential effects of varying agricultural and climate conditions on water demands. Tabulating water uses in the AWMP is required. It is recommended that the AWMP report the amount of water for the following categories in the tabulation of water uses:

### 1. Uses of Agricultural Water Supplier Water

Water delivered for agriculture (see AWMP Template Recommended Table 43 with information from Table 20):

- Surface water
- Groundwater
- Recycled water

How much is used for agricultural uses (see AWMP Template Recommended Table 44 with information from Tables 9 and 21):

- Crop consumptive use of water
- Amount of water used for leaching, if known
- Amount of water used for other cultural practices (e.g., seedbed preparation, climate control), if known

For estimating agricultural use, you may wish to combine crops grown on less than five percent of the total irrigated acreage. To combine crops, determine an average crop evapotranspiration factor ( $ET_{crop}$ ), leaching, and cultural requirement for this group of small acreage crops. The  $ET_{crop}$  for crops in your area and how to calculate crop water use can be found using the California Irrigation Management Information System (CIMIS) at [www.cimis.water.ca.gov/cimis/info.jsp](http://www.cimis.water.ca.gov/cimis/info.jsp), Center for Irrigation Technology at Fresno State University Water Right Program, Department of Water Resources (DWR) CIMIS Database, [www.wateright.org](http://www.wateright.org), or obtained from the local farm advisor. The University of California Cooperative Extension (UCCE) has published coefficients required to determine  $ET_{crop}$ , available on CIMIS website.

The University of California Cooperative Extension (UCCE) has published information on estimating water used for leaching and cultural practices (frost protection, pre-irrigation, and others).

- Estimate of how much is lost through the delivery and storage system. This could include losses from both the agricultural supplier's and the customer's delivery and storage system through leaks, spills, and evaporation from reservoirs and unlined canals, and leaks from pipelines. Leaks and spills, may be recoverable if they discharge to a useable water resource. Evaporation losses would be non-recoverable. (see AWMP Template Recommended Table 44)
- Other water (e.g., return flows)
- Any water type delivered for municipal and industrial water use (see AWMP Template Recommended Table 44 with information from Table 26)
- Any water type water delivered for supporting environmental resources (see AWMP Template Recommended Table 44 with information from Table 24)
- Any water type water delivered for recreational purposes (see AWMP Template Recommended Table 44 with information from Table 25)
- Any water delivered for groundwater recharge/conjunctive use; include total recycled water, surface water, and other water supply water delivered for groundwater recharge (see AWMP Template Recommended Table 44 with information from Table 27)

If deep percolation is to a useable groundwater aquifer, this would also be 'recoverable' flow. Provide a rough estimate of the amount of water applied to the land that continues down past the root zone (deep percolation).

- Water exchanges or transfers out of the service area (see AWMP Template Recommended Table 44 with information from Table 28)
- Other water used/delivered for any other purposes (e.g., road dust suppression) (see AWMP Template Recommended Table 44 with information from Table 29)
- Estimate of water lost in the storage and delivery system, if available (e.g., seepage, evaporation, and spillage from storage and conveyance of water supplies to customers). (see AWMP Template Recommended Table 44)
- How much occurs as recoverable surface and subsurface flows, if available.

If drainage water can be reused, it would be 'recoverable' flow. Quantify the drain-water that leaves the district boundaries from surface ditches or through drainpipes. If no measurement data is available, this can be estimated based on the amount of water required for agricultural uses and conveyance and storage system losses (from AWMP Template Recommended Table 44) subtracted from water delivered to agricultural customers. (see AWMP Template Recommended Table 45)

While an estimate is acceptable, if the estimate exceeds 100 AF per year per outflow location, installation of an outflow measurement device is highly recommended. Reliable outflow data is a best management practice and one of the key components of an accurate water inventory.

- Estimate the quantity of irrecoverable flows. (see AWMP Template Recommended Table 46)

### **C. Overall Water Budget (§10826 (b)(7)(C))**

Water use supply and water use data, tabulated above, along with additional data can be used to help prepare a water budget summary that quantifies, to the best of your ability, uses, water losses, water supplies, and overall water budget. It is suggested that this section report:

- The overall amount of surface water and groundwater supplies, effective precipitation, and transferred water supplies delivered into the service area. This would a sum of all supply delivered into the service area (surface water and groundwater) along with recycled water, private groundwater, effective precipitation and any other water supplies. (see AWMP Template Recommended Table 47)

- How much is used for all purposes, including amounts delivered for environmental uses and inadvertent drainage from agricultural areas. (see AWMP Template Recommended Table 48)
- How much leaves the service area through surface drainage. (see AWMP Template Recommended Table 45)

As an overview, annual amounts are appropriate, although monthly/seasonal amounts would better facilitate the water management planning process and may be more appropriate to use in calculating annual amounts. Details on method used to determine/estimate quantities should be provided.

It is recommended that quantification for individual water supply source(s) also be included in the analysis, where applicable, in order to maximize utilization of the results for water management planning (e.g., identifying critical supply component(s), where efficiency can be improved to maximize available water, where conservation is necessary to maximize utilization, and others).

#### **D. Water Supply Reliability**

Water supply reliability is an important component of any water management planning process. Several factors can affect the reliability of any water resource supply. In accordance with SB X7-7 **§10826 (b)(8)**, water supply reliability must be described in the AWMP. However, as with many components of the AWMP, details of the description are at the discretion of the agricultural water supplier.

It is recommended that, at a minimum, the AWMP discusses need for firmness of supply based upon factors of importance to the water supplier and the potential for failure. Critical needs (e.g., economically valuable crop types with highly sensitive irrigation requirements, environmental uses, and others) should be identified, along with the associated water supply constraints.

The AWMP should also include a description of the following factors that may affect water supply reliability.

- a) Conveyance infrastructure reliability (such as infrastructure age, ability to withstand catastrophic events, leaking distribution systems, susceptibility to catastrophic flood and other events, and others)
- b) Water storage reliability (this could include land subsidence and groundwater aquifer volume reductions, susceptibility to catastrophic events, or other factors)
- c) Contracted water reliability (such as SWP, CVWP-1, wholesaler water, other contracts or trades)
- d) Natural reliability (such as hydrologic and climate uniformity)

e) Land use alterations (these could affect the water demands, water supply sources, groundwater recharge locations, and other conditions)

f) Pertinent regulations

Details on potential climate change effects are addressed under a separate section.

The AWMP should also discuss mechanisms in place or planned that would enhance supply reliability.

It is also recommended, but not required, that the AWMP include a discussion of water supply reliability under potential drought conditions.

## E. Optional – Future Water Supply

An assessment of future water supply is not required in the AWMP. However, understanding potential future water supplies is an important component of the water management planning process. It is recommended that the agricultural water supplier identify potential changes in future water supplies such as environmental constraints, drought, or changes in water storage capacity. Possible management strategies to maximize future water supplies and/or future water supply reliability, such as improvements in conjunctive use programs, or other water management option could also be identified.

## 2.6 Climate Change

SB X7-7 requires that the AWMP: *“Include an analysis, based upon available information, the effect of climate change on future water supplies”* **(§10826 (c))**

For example, the agricultural water supplier should consider in its 2012 AWMP the effects of climate change on water supply availability. Potential climate change could affect agricultural water suppliers within the planning horizon of AWMP. Refer to Chapter 2.6: Guidance on Climate Change.

## 2.7 Water Use Efficiency Information

SB X7-7 **(§10826 (e))** requires that water use efficiency information must be included in the AWMP per **(§10608.48)**. Section **(10608.48 (a))** through **(10608.48(f))** is related to the EWMPs of the AWMP. Sections **(10608.48 (a))** to **(10608.48 (c))** require implementation of EWMPs. Section **(10608.48 (d))** requires a report of which EWMPs have been implemented and the estimate of efficiency improvements. Sections **(10608.48 (e) and (f))** require how to report the information. Implementation of critical EWMPs **(§10608.48 (b))** are required of all agricultural water

suppliers. Other EWMPs listed in **§10608.48 (c)** are required only if they are locally cost-effective and technically feasible. This section lists the AWMP reporting requirements and EWMPs implementation requirements (see Section VII of Appendix A).

## **A. EWMP Implementation and Reporting**

SB X7-7 requires that the AWMP: *“Report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five to 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.”* (**§10608.48 (d)**).

As such, the AWMP must include:

- A list of implemented and planned-to-be-implemented EWMPs (see AWMP Template Recommended Table 49)
- An estimate of water use efficiency improvements since the previous report. For an initial 2012 AWMP, it is likely there is no previous report to compare improvements. As such, it is recommended that improvements be estimated for EWMPs since implementation and submittal of the 2012 AWMP. (see AWMP Template Recommended Table 49)
- Estimate of water use efficiency improvements estimated to occur in five to ten years (see AWMP Template Recommended Table 49)

Although it is not required by SB X7-7, a plan, schedule, and finance plan to implement EWMPs (**§10608.48 (b) and (c)**) as described in this Guidebook is recommended. (see AWMP Template Recommended Table 50)

Critical EWMPs must be implemented. Conditional EWMPs may be omitted if they are not locally cost-effective or technically feasible. However, documentation for this determination is required in the AWMP (see Recommended Table 51 of Appendix A).

### **1. Information on Required EWMPs**

AWMP Template Recommended Table 49 may be used to report EWMPs implemented.

#### **a) Critical EMWPs**

Specific critical EWMPs must be implemented by the agricultural water supplier. These include (**§10608.48(b)**):

- (1) *Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).*
- (2) *Adopt a pricing structure for water customers based at least in part on quantity delivered.*

It is required by the CCR for all water suppliers as defined in the CCR **§597 et seq.** to measure water with devices that comply with the accuracy standards of the water measurement regulation.

Water suppliers should report the total number of farm-gates in the service area, the number of farm-gates complying with the CCR at the farm-gate, number of laterals, and number of laterals complying with the CCR accuracy standards. They should also include the number of each type planned for future water use measurement, if applicable. If the water supplier is not measuring water at the farm-gate, (i.e., measuring water use at the lateral) the water supplier must provide specific documentation in the AWMP as required by CCR and outlined in Chapter 5 (Chapter 6.9 contains the relevant regulation).

It is also required that the AWMP include a description of how compliance with the pricing structure was implemented or planned for implementation if water measurements cannot be conducted at the farm-gate.

The documentation required by CCR, as described in Chapter 5, should be included in Section VIII of the AWMP.

Federal water suppliers subject to CVPIA and RRA water conservation plans may submit Agriculture Water Measurement Regulation information required in the AWMP as an attachment to their water conservation plan. See Chapter 4 for required documentation, as applicable.

For those agricultural water suppliers with at least 10,000 and less than 25,000 irrigated acres, implementation of the Agricultural Water Measurement Regulation for measuring water deliveries is only required if sufficient funding has been provided specifically for that purpose (**CCR §597.1 (e)**). For agricultural water suppliers without the funding and meeting this size criteria, implementation of both critical EWMPs is still required, however, water measurements do not have to be conducted in accordance with **CWC §597.1 et seq.**

## **b) Conditional EWMPs**

As noted above, if certain EWMPs are not locally cost-effective or technically feasible they would not have to be implemented. However, if these EWMPs are locally cost-effective and technically feasible, they must be implemented by agriculture water suppliers providing water to at least 25,000 irrigated acres and water suppliers providing water to 10,000 to 25,000 irrigated acres if funding is available (SB X7-7 **§10608.48 (c)**):

- (1) *“Facilitation of alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including problem drainage”* **(§10608.48 (c)(1))**.
- (2) *“Facilitation of use of available recycled water that otherwise would not be used beneficially, meets health and safety criteria, and does not harm crops or soils. The use of recycled urban wastewater can be an important element in overall water management”* **(§10608.48 (c)(2))**.

For an example success story, see:

[http://www.pacinst.org/reports/success\\_stories/recycled\\_water\\_and\\_agriculture.htm](http://www.pacinst.org/reports/success_stories/recycled_water_and_agriculture.htm)

- (3) *“Facilitate the financing of capital improvements for on-farm irrigation systems”* **(§10608.48 (c)(3))**.

- (4) *“Implement an incentive pricing structure that promotes one or more of the following goals”* **(§10608.48 (c)(4))**:

A. *“More efficient water use at the farm level such that it reduces waste”* **(§10608.48 (c)(4)(A))**.

B. *“Conjunctive use of groundwater”* **(§10608.48 (c)(4)(B))**.

The Bureau of Reclamation’s 2011 Standard Criteria, Addendum A, provides a suggested detailed analysis method: [http://www.usbr.gov/mp/watershare/documents/Water\\_mgmt/Planner/2011%20\(2\)%20Standard%20Criteria.pdf](http://www.usbr.gov/mp/watershare/documents/Water_mgmt/Planner/2011%20(2)%20Standard%20Criteria.pdf)

Explanation: In dry years the water suppliers may encourage, through higher prices for surface water, pumping more groundwater and leaving surface water for environmental uses.

- C. *“Appropriate increase of groundwater recharge”* **(§10608.48 (c)(4)(C))**.

Explanation: In wet years pricing may be used to encourage greater use of surface water to facilitate recharge. For examples, see: <http://agwaterstewards.org/water/list/>

- D. *“Reduction in problem drainage”* **(§10608.48 (c)(4)(D))**.

For an example success story, see Red Rock Ranch in:

<http://aginnovations.org/agwaterstewards.org/uploads/docs/CaliforniaWaterStewards.pdf>

- E. *“Improved management of environmental resources”* **(§10608.48 (c)(4)(E))**.

F. *“Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions”* **(§10608.48 (c)(4)(F))**.

(5) *“Expand line or pipe distribution systems, construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage”* **(§10608.48 (c)(5))**.

- Lining or piping the distribution system could increase distribution system flexibility and capacity and decrease maintenance and seepage.
- Seepage and evaporation losses in earthen canals and laterals can be minimized by replacement with pipelines or lining with bentonite clay, pour-in-place concrete or plastics/textile membranes. To reduce on-farm seepage losses, districts may wish to consider helping growers to line their ditches or install pipelines.

(6) *“Increase flexibility in water ordering by, and delivered to, water customers within operational limits”* **(§10608.48 (c)(6))**.

(7) *“Construct and operate supplier spill and tail-water systems”* **(§10608.48 (c)(7))**.

Explanation: This may increase efficiency or, in some cases, reduce losses of water from operational spills. In some areas, interception and recovery of farm tail-water may be advantageous. Consideration must be given to the impacts of such activities on water quality, crop yields, soil salinity and other conditions, third parties, and the environment.

(8) *“Increase planned conjunctive use of surface water and groundwater with the supplier service area”* **(§10608.48 (c)(8))**.

(9) *“Automate canal control devices”* **(§10608.48 (c)(9))**.

Explanation: This may increase flexibility in water deliveries and increase the water supplier’s control over its water supplies, thereby providing the opportunity to improve the efficiency of water use.

(10) *“Facilitate or promote customer pump testing and evaluation”* **(§10608.48 (c)(10))**.

(11) *“Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports”* **(§10608.48 (c)(11))**.

(12) *“Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following”* **(§10608.48 (c)(12))**:

A. *“On-farm irrigation and drainage system evaluations”* **(§10608.48 (c)(12)(A))**.

DWR conducts an eco/mobile lab program that evaluates the performance of irrigation systems. The laboratories measure water application rates and system distribution uniformity and give recommendations for irrigation system improvement, if necessary: <http://www.water.ca.gov/wateruseefficiency/irrigation/>

B. *“Normal year and real-time irrigation scheduling and crop evapotranspiration information” (§10608.48 (c)(12)(B)).*

An important source of ET data for California is the California Irrigation Management Information System (CIMIS). CIMIS is a network of over 140 automated weather stations scattered throughout California that provide ETo and weather data to the public free of charge:

<http://wwwcimis.water.ca.gov/cimis/welcome.jsp>

C. *“Surface water, groundwater, and drainage water quantity and quality data” (§10608.48 (c)(12)(C)).*

D. *“Agricultural water management educational programs and materials for farmers, staff, and the public” (§10608.48 (c)(12)(D)).*

These could include such items as: soil moisture and salinity monitoring, in-school awareness programs, Agwater software, efficient irrigation techniques, crop water budget and other approaches, program delivery via workshops, seminars, newsletters, field days and demonstration, and others.

(13) *“Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional change to allow more flexible water deliveries and storage.” (§10608.48 (c)(13)).*

(14) *“Evaluate and improve the efficiencies of the supplier’s pumps.” (§10608.48 (c)(14)).*

## **B. Documentation For Non-Implemented EWMPs**

For Conditional EWMPs, the AWMP required EWMP reporting must also include documentation of the agricultural water supplier’s determination that a conditional EWMP is not locally cost-effective or technically feasible, if applicable. Refer to Exhibit E of the 1999 AWMC-MOU for a net benefit analysis approach that can be used to assess local cost-effectiveness for the conditional EWMPs. Exhibit E is available at: <http://www.agwatercouncil.org/images/stories/pdfs/awmcmou.pdf>

A cost-benefit analysis or engineering determination supporting the omission of a conditional EWMP is recommended as part of the EWMP report in the AWMP. AWMP Template Recommended Table 51 may be used to document non-implemented EWMP rationale. Additional documentation (e.g., detailed cost-benefit analysis, engineering calculations, and others) can also be attached in Section VIII of AWMP (see Chapter 2.8 for details).

## 2.8 Supporting Documentation

Add supporting documentation as required by CCR 23 **§597 et seq.**, for compliance with Agriculture Water Measurement Regulation as described in Chapter 5. Also, include any other recommended documentation and other information to support any analysis in AWMP Sections II through VII.

### **Agriculture Water Measurement Regulation Supporting Documentation (as applicable):**

- A. Legal Certification and Apportionment Required for Water Measurement
- B. Engineer Certification and Apportionment Required for Water Measurement
- C. Description of Water Measurement Best Professional Practices
- D. Documentation of Water Measurement Conversion to Volume
- E. Device Corrective Action Plan Required for Water Measurement
- F. Farm-gate Measurement and Device Accuracy Compliance (Optional)

### **Other Documents (as applicable):**

1. Coordination documentation, as applicable
  - Notification of AWMP Preparation
  - Comments received on the AWMP
  - Copies of outreach materials
  - Hearing/equivalent process notifications
  - Newspaper ads
  - Copies of AWMP notice of availability
  - Others, as applicable
2. Resolution of Plan Adoption
3. Water supplier maps
4. Water Supplier Operating Rules and Regulations
5. Additional Agriculture Water Measurement Regulation compliance documentation
6. Water Shortage Allocation Policy
7. Water Shortage Contingency Plan
8. Agricultural supplier groundwater wells and recharge locations maps
9. Groundwater Management Plan

10. Detailed water quality information
11. Cost-benefit analysis/ technical infeasibility documentation
12. Additional information/data as applicable.

### 3 AWMC MOU Process Guidance

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The AWMC-MOU Water Management Plan and the required documentation identified below together would satisfy SB X7-7 requirements for agricultural water management planning.

#### 3.1 AWMC- Approved Water Management Plan

SB X7-7 allows the members of the AWMC-MOU to submit their AWMC-approved Water Management Plan for compliance with SB X7-7 §10826.

#### 3.2 Additional Documentation

Additional information must be included in the Water Management Plan for compliance with SB X7-7 §10827 and the Agricultural Water Measurement Regulation (as applicable in accordance with CCR §597.4 (e)). Include or attach the following applicable documentation with the AWMC-approved Water Management Plan. Refer to Chapter 5 for details regarding details on the Agricultural Water Measurement Regulation documentation and reporting requirements. This documentation must also be reviewed and approved by the water supplier and submitted with the AWMP.

##### A. EWMPs Documentation

###### 1. Report on EWMPs -

A report on the EWMPs implemented, EWMPs planned for implementation, an estimate of efficiency improvements since the last report, and estimated efficiency improvements expected in the next 5 to 10 years must be included. (see AWMP Template Recommended Table 49)

###### 2. Schedule to Implement (Required for Loan and Grant Eligibility, only) -

If the water supplier has not implemented all of the SB X7-7 §10608.48 EWMPs, the water supplier must submit to DWR for approval, a schedule, financing plan, and budget for implementation of remaining EWMPs. (see AWMP Template Recommended Table 50).

###### 3. Non-Implemented EWMPs -

If any non-critical EWMP is determined to be not locally cost-effective or technically feasible, documentation for that determination must be included. (see AWMP Template Recommended Table 51)

##### B. Agriculture Water Measurement Regulation Documentation (as applicable)

1. Attachment A: Legal Certification and Apportionment Required for Water Measurement
2. Attachment B: Engineer Certification and Apportionment Required for Water Measurement
3. Attachment C: Description of Water Measurement Best Management Practices
4. Attachment D: Documentation of Water Measurement Conversion to Volume
5. Attachment E: Device Corrective Action Plan Required for Water Measurement
6. Attachment F: Farm-gate Measurement and Device Accuracy Compliance (Optional)

### **C. Plan Submittal**

Refer to Chapter 6.2 for details regarding how to submit a completed plan.

## 4 USBR CVPIA/RRA Process Guidance

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The Water Conservation Plan and the required documentation identified below together would satisfy SB X7-7 requirements for agricultural water management planning.

### 4.1 USBR- Accepted CVPIA/RRA Water Conservation Plan

SB X7-7 allows agricultural water suppliers subject to the USBR CVPIA/RRA Water Conservation Plan process to submit those plans for compliance with SB X7-7 **§10826** provided that: 1) the water conservation plan has been adopted by the agricultural water supplier and submitted to the U.S. Bureau of Reclamation (USBR) within the previous four years, and 2) the USBR has accepted the water conservation plan as adequate. DWR accepts CVPIA/RRA Water Conservation Plans that have been accepted as adequate by the USBR no earlier than January 1, 2009. These agricultural water suppliers must also submit additional documentation to DWR as identified in Chapter 4.2, below.

### 4.2 Additional Documentation

Additional information must be included with the Water Conservation Plan submitted to DWR for compliance with the Water Measurement Regulations (**CCR §597.4 (e)**). Include or attach the following documentation, as applicable, with the USBR-accepted Water Conservation Plan submitted to DWR. Refer to Chapter 5 for details regarding the Agricultural Water Measurement Regulation reporting and documentation requirements. This documentation must also be approved by the water supplier as part of the Water Conservation Plan.

#### A. Agriculture Water Measurement Regulation Documentation (as applicable)

1. Attachment A: Legal Certification and Apportionment Required for Water Measurement
2. Attachment B: Engineer Certification and Apportionment Required for Water Measurement
3. Attachment C: Description of Water Measurement Best Professional Practices
4. Attachment D: Documentation of Water Measurement Conversion to Volume
5. Attachment E: Device Corrective Action Plan Required for Water Measurement
6. Attachment F: Farm-gate Measurement and Device Accuracy Compliance (Optional)

#### B. Optional Documentation

It is recommended that the following documentation be included as an attachment to the Water Conservation Plan because loan and grant eligibility will be contingent upon the following additional documentation:

##### 1. Report on EWMPs

A report on the EWMPs implemented, EWMPs planned for implementation, an estimate of efficiency improvements since the last report, and estimated efficiency improvements expected in the next 5 to 10 years must be included. (see AWMP Template Recommended Table 49)

##### 2. Schedule to Implement

If the water supplier has not implemented all of the Section 10608.48 EWMPs, the water

supplier must submit to DWR for approval, a schedule, financing plan, and budget for implementation of remaining EWMPs. (see AWMP Template Recommended Table 50).

### **3. Non-Implemented EWMPs**

If any non-critical EWMP is determined to be not locally cost-effective or technically feasible, documentation for that determination must be included. (see AWMP Template Recommended Table 51)

### **C. Plan Submittal**

Refer to Chapter 6.2 for details regarding how to submit a completed plan.

## 5 Water Measurement Documentation

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The Agricultural Water Measurement Regulation requires that water measurements be conducted at the Delivery Point or Farm-gate of a single customer and that measurement devices are certified as accurate through field-testing, laboratory/engineer certification, or inspection. There are specific requirements for water measurement and reporting in the AWMP that are identified in CCR §597.3(b)(2), §597.4(b)(2) and §597.4 (e). This Chapter describes the pertinent Agricultural Water Measurement Regulation documentation that must be included in the AWMP, if applicable.

### 5.1 Water Measurement Documentation needed for SB X7-7 Submittals:

All documentation needed for water measurement compliance should be included in Section VIII of the AWMP or included as attachments submitted with AWMC-MOU Water Management Plans or CVPIA/RRA Water Conservation Plans to DWR.

If the agricultural water supplier cannot measure water deliveries at the Delivery Point or Farm-gate of a single customer, they may be able to measure deliveries at an upstream location, provided certain criteria are met and that this is documented in the AWMP. The criteria for allowing upstream measurements are specified in CCR §597.3(b)(1). The criteria for measurement device accuracy and certification are specified in CCR §597.3(a), §597.4(a), and §597.4(b).

The following information is required in the AWMP to document that this criterion was satisfied, if applicable:

#### A. Legal Certification and Apportionment Required for Water Measurement – Lack of Legal Access to Farm-gate

If a water supplier cannot measure water at the farm-gate because of lack of legal access needed to install, measure, maintain, operate, and monitor a measurement device (CCR §597.3(b)(1)(A)), the following must be included in the AWMP or as Attachment A with the AWMC-MOU or CVPIA/RRA plans:

1. Certification for lack of legal access by the water supplier legal counsel (CCR §597.3(b)(2)(A))
2. Documentation on apportionment of volume of water delivered to customers (CCR §597.3(b)(2)(C)).

Under CCR §597.4.b(2)(C), if water measurements cannot be conducted at the Delivery Point or Farm-gate of a single customer, all of the following criteria about how the agricultural water supplier apportions the volume of water delivered to individual downstream customers must be documented in the AWMP:

- a. How differences in water use among individual customers is accounted for based on (but not limited to):

- Duration of water delivery
  - Annual customer water use patterns
  - Irrigated acreage
  - Crops planted, and
  - On-farm irrigation system
- b. That this delivery apportioning is sufficient for establishing a pricing structure based at least in part on the volume delivered, and
- c. That it was approved by the agricultural water supplier’s governing board or body.

**B. Engineer Certification and Apportionment Required for Water Measurement – Technically Infeasible**

If a water supplier does not measure water at the Farm-gate but instead measures water at the lateral (upstream of multiple customers) because flow or water level fluctuations or other conditions prevent the ability to accurately measure at the Farm-gate, the water supplier must provide the following in the AWMP or as Attachment B with the AWMC-MOU or CVPIA/RRA plans:

1. Engineer determination that accuracy standards of CCR §597.3(a) cannot be met at the farm-gate (CCR §597.3(b)(1)(B) and §597.3(b)(2)(B)),
2. Documentation on apportionment of volume of water delivered to customers as described above (Guidebook section 5.1 A.2) (CCR §597.3(b)(2)(C)).

**C. Description of Water Measurement Best Professional Practices**

All water suppliers required to implement agricultural water measurement in accordance with CCR §597 must include a description of Best Professional Practices about, but not limited to: (CCR §597.4(e)(2))

- The collection of water measurement data
- Frequency of measurements
- Method for determining irrigated acres
- Quality control and quality assurance procedures.

Include this description in the AWMP or as Attachment C with the AWMC-MOU or USBR plans submitted to DWR.

**D. Documentation of Water Measurement Conversion to Volume**

If water measurement device(s) are not measuring water volume, all water suppliers required to implement agricultural water measurement in accordance with CCR §597 must provide documentation on how measurements are converted to volume (CCR §597.4(b)(2)(e)). Specific flow-rate, velocity, and water elevation measurement conversions are identified in CCR

**§597.4(b)(2)(e3)**. Include this description in the AWMP or as Attachment D with the AWMC-MOU or USBR plans submitted to DWR.

## **E. Device Corrective Action Plan Required for Water Measurement**

All existing water measurement devices must measure water delivered at the Delivery Point or Farm-gate of a single customer with the following accuracy: **CCR §597.3(a)**

- Existing devices with an accuracy of + 12% by volume
- New or replacement devices with a laboratory certified accuracy of 5% by volume or field-certified accuracy of 10% by volume

**CCR §597.4(a)** describes the initial certification of device accuracy protocols and **CCR §597.4(b)** describes the field-testing and field-inspection of existing devices protocols. Field-testing must be conducted as a statistically random representative sample of devices. Field inspections and analysis must be completed for every measurement device. In both cases, only trained and qualified individuals can perform these assessments and they must be approved by an engineer.

If field testing or inspection shows that a measurement device does not meet the accuracy criteria, it must be repaired and brought into compliance or replaced with a measurement device meeting the accuracy criteria above. If this cannot be accomplished by submittal of the 2012 plans, a corrective action plan is required to bring devices into compliance by 2015 (**CCR §597.4 (b)(2)** and **§597.4 (e)**). This corrective action plan must be included in the 2012 plan submittal to DWR and must include a schedule, budget, and finance plan for taking corrective action (**CCR §597.4 (e)(4)**). Include this description in the AWMP or as Attachment E with the AWMC-MOU or USBR plans submitted to DWR.

## **5.2 Optional Water Measurement Documentation for SB X7-7 Submittals:**

If the agricultural water supplier can measure deliveries at the Delivery Point or Farm-gate of a single customer, it is recommended, but not required, that the AWMP document compliance with this criterion and that these measurement locations be identified in the AWMP. If the agricultural water supplier field-test of existing water measurement devices (**CCR §597.4 (a)(1)** or **§597.4 (a)(2)**) meet accuracy requirements specified in **CCR §597.4 (a)**, it is recommended, but not required, that test results are documented in the AWMP. It is also recommended that engineer approval of the measurement system, in accordance with **CCR §597.4 (b)(3)** be documented the AWMP. This documentation can be included in Section VIII of the AWMP or as an Optional Attachment F included with AWMC-MOU or CVPIA/RRA plans submitted to DWR.

**Table C. Water Measurement Documentation Information**

May be submitted to DWR as an addendum with a USBR-approved plan to satisfy water measurement requirements.

<b>Subject</b>	<b>State Regulation (CCR)</b>	<b>Information that may be submitted</b>
<b>Requirements for Measuring at Upstream of Multiple Customers</b>	<b>Section 597.3(b)</b> – allows installing measurement device upstream of multiple customers if certain conditions are met.	If water measurement device is installed upstream of multiple farm-gates, provide information on lack of legal access or conditions as described in Sections 597.3(b)(1)(A), 597.3(b)(1)(B), and 597.3(b)(2) of regulation
<b>Performance Requirements</b>	<b>Section 597.4(d)</b> – 1. Devices shall be correctly installed, maintained, operated, inspected, and monitored  2. Devices no longer meeting the accuracy requirements shall be repaired or replaced	Provide a description of device performance.
<b>Reporting Requirements</b>	<b>Section 597.4(e)(1)-(4)</b> - Document compliance w/ 597.3 (b) Description of best professional practices used Protocols used to convert non-volume readings Schedule, budget and finance plan for taking corrective actions	Provide documents for Section 597.4(e)(1)-(4).
<b>Requirements for bringing existing devices under compliance</b>	<b>Section 597.4(e)(4)</b> – Schedule, budget and finance plan	If applicable, provide information for Section 597.4(e)(4).

## 6 Supporting Information

### 6.1 Checklist

AWMP* Location	Guidebook Location	Description	SB X7-7 Section (or other, as identified)
	1.2	AWMP Required?	10820, 10608.12
	1.2	At least 25,000 irrigated acres or	10853
	1.2	Less than 25,000 acres and available funding specified	10853
	1.1, 1.2	Initial AWMP prepared and adopted by December 31, 2012?	10820 (a)
	1.1, 1.2	December 31, 2015 update?	10820 (a)
	1.2	5-year cycle update?	10820 (a)
	1.2	New agricultural water supplier after December 31, 2012 - AWMP prepared and adopted within 1 year?	10820 (b)
	1.3	AWC 1999 MOU: Report on EWMP implemented or scheduled for implementation included?	10827
	1.3	USBR water conservation plan:	10828(a)
	1.3	Adopted and submitted to the United States Bureau of Reclamation within the previous four years? AND	10828(a)(1)
	1.3	The United States Bureau of Reclamation has accepted the water conservation plan as adequate?	10828(a)(2)
	1.2	UWMP or participation in areawide, regional, watershed, or basinwide water management planning: does the plan meet requirements of SB X7-7 2.8? (use checklist)	10829
	2.1 A	Description of previous water management activities	10826(d)
	2.1 B.1	Was each city or county within which supplier provides water supplies notified that the agricultural water supplier will be preparing or amending a plan?	10821(a)
	2.2 B.2	Was the proposed plan available for public inspection prior to plan adoption?	10841
	2.1 B.2	Publically-owned supplier: Prior to the hearing, was the notice of the time and place of hearing published within the jurisdiction of the publicly owned agricultural water supplier in accordance with Government Code 6066?	10841
	2.1 B.2	14 days notification for public hearing?	GC 6066

	2.1 B.2	Two publications in newspaper within those 14 days?	GC 6066
	2.1 B.2	At least 5 days between publications ? (not including publication date)	GC 6066
	2.1 B.2	Privately-owned supplier: was equivalent notice within its service area and reasonably equivalent opportunity that would otherwise be afforded through a public hearing process provided?	10841
	2.1 C.1	After hearing/equivalent notice, was the plan adopted as prepared or as modified during or after the hearing?	10841
	2.1 C.2	Was a copy of the AWMP, ammendments, or changes, submitted to the entities below, no later than 30 days after the adoption?	10843(a)
	2.1 C.2	The department.	10843(b)(1)
	2.1 C.2	Any city, county, or city and county within which the agricultural water supplier provides water supplies.	10843(b)(2)
	2.1 C.2	Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.	10843(b)(3)
	2.1 C.2	Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.	10843(b)(4)
	2.1 C.2	Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.	10843(b)(5)
	2.1 C.2	The California State Library.	10843(b)(6)
	2.1 C.2	Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.	10843(b)(7)
	2.1 C.3	Adopted AWMP availability	10844
	2.1 C.3	Was the AWMP available for public review on the agricultural water supplier's Internet Web site wtihin 30 days of adoption?	10844(a)
	2.1 C.3	If no Internet Web site, was an electronic copy of the AWMP submitted to DWR within 30 days of adoption?	10844(b)
	2.1 D.1	Implement the AWMP in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.	10842
	2.2	Description of the agricultural water supplier and service area including:	10826(a)
	2.2 A.1	Size of the service area.	10826(a)(1)
	2.2 A.2	Location of the service area and its water management facilities.	10826(a)(2)
	2.2 A.3	Terrain and soils.	10826(a)(3)

	2.2 A.4	Climate.	10826(a)(4)
	2.2 B.1	Operating rules and regulations.	10826(a)(5)
	2.2 B.2	Water delivery measurements or calculations.	10826(a)(6)
	2.2 B.3	Water rate schedules and billing.	10826(a)(7)
	2.2 B.4	Water shortage allocation policies.	10826(a)(8)
	2.3	Water uses within the service area, including all of the following:	10826(b)(5)
	2.3 A	Agricultural.	10826(b)(5)(A)
	2.3 B	Environmental.	10826(b)(5)(B)
	2.3 C	Recreational.	10826(b)(5)(C)
	2.3 D	Municipal and industrial.	10826(b)(5)(D)
	2.3 E	Groundwater recharge.	10826(b)(5)(E)
	2.3 F	Transfers and exchanges.	10826(b)(5)(F)
	2.3 G	Other water uses.	10826(b)(5)(G)
	2.4 A	Description of the quantity of agricultural water supplier's supplies as:	10826(b)
	2.4 A.1	Surface water supply.	10826(b)(1)
	2.4 A.2	Groundwater supply.	10826(b)(2)
	2.4 A.3	Other water supplies.	10826(b)(3)
	2.4 A.4	Drainage from the water supplier's service area.	10826(b)(6)
	2.4 B	Description of the quality of agricultural waters suppliers supplies as:	10826(b)
	2.4 B.1	Surface water supply.	10826(b)(1)
	2.4 B.2	Groundwater supply.	10826(b)(2)
	2.4 B.3	Other water supplies.	10826(b)(3)
	2.4 C.1	Source water quality monitoring practices.	10826(b)(4)
	2.4 C.2, 2.4 C.4	Drainage from the water supplier's service area.	10826(b)(6)
	2.5	Description of water accounting, including all of the following:	10826(b)(7)
	2.5 A	Quantifying the water supplier's water supplies.	10826(b)(7)(A)
	2.5 B	Tabulating water uses.	10826(b)(7)(B)
	2.5 C	Overall water budget.	10826(b)(7)(C)
	2.5 D	Description of water supply reliability.	10826(b)(8)
	2.6	Analysis of climate change effect on future water supplies analysis	10826(c)

	2.7	Water use efficiency information required pursuant to Section 10608.48.	10826(e)
	2.7 A	Implement efficient water management practices (EWMPs)	10608.48(a)
	2.7 A.1.a	Implement Critical EWMP: Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).	10608.48(b)
	2.7 A.1.a	Implement Critical EWMP: Adopt a pricing structure for water customers based at least in part on quantity delivered.	10608.48(b)
	2.7 A.1.b	Implement additional locally cost-effective and technically feasible EWMPs	10608.48(c)
	2.7 B	If applicable, document (in the report) the determination that EWMPs are not locally cost-effective or technically feasible	10608.48(d)
	2.7 A	Include a report on which EWMPs have been implemented and planned to be implemented	10608.48(d)
	2.7 A	Include (in the report) an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future.	10608.48(d)
	2.7	Standardized form used to report (developed pursuant to Section 10608.52).	10608.48(e)
	4.2 B	USBR water conservation plan may meet requirements for EWMPs	10608.48(f)
	2.8 E	Existing water measurement device corrective action plan? (if applicable, including schedule, budget and finance plan)	CCR §597.4(e)(4)
	2.8 A	Lack of legal access certification (if water measuring not at farm gate or delivery point)	CCR §597.3(b)(2)(A)
	2.8 B	Lack of technical feasibility (if water measuring not at farm gate or delivery point)	CCR §597.3(b)(1)(B), §597.3(b)(2)(B)
	2.8 A, 2.8 B	Delivery apportioning methodology (if water measuring not at farm gate or delivery point)	CCR §597.3.b(2)(C),
	2.8 D	Conversion to measurement to volume	CCR §597.4(e)(3)
	2.8 C	Description of water measurement BPP	CCR §597.4(e)(2)

\* Note where compliance with this requirement is located in your AWMP

## 6.2 Plan Submittal

All agricultural water suppliers that are required to prepare and implement an AWMP must submit a copy to DWR and a copy to the California State Library as well as other entities as specified in Chapter 2.1.

### A. Submission to DWR:

Send the AWMP and applicable documentation required by SB X7-7 and the Agriculture Water Measurement Regulations directly to DWR. DWR requests one (1) electronic copy and one (1) hardcopy of the AWMP and all applicable documentation.

The electronic copy can be sent by email to [agwue@water.ca.gov](mailto:agwue@water.ca.gov) (attachment size not to exceed 20 MB) or on a CD.

CDs and hard copies should be mailed to:

Fethi BenJemaa  
Department of Water Resources  
Statewide Integrated Water Management  
Water Use and Efficiency Branch  
PO Box 942836  
Sacramento, CA 94236-0001

Or, dropped off in person at:

ATTN: Fethi BenJemaa  
Department of Water Resources  
Statewide Integrated Water Management  
Water Use and Efficiency Branch  
901 P Street, Room 314  
Sacramento, CA 95814

For members of the AWMC with Water Management Plans submitted and approved through the AWMC, the water supplier is responsible for timely submittal of the AWMC approved plans to DWR. These water suppliers must submit the AWMC approved plan directly to DWR. One (1) electronic copy and one (1) hard copy of the plan and applicable documentation are required.

For CVPIA/RRA water supplier plans accepted as adequate by Reclamation, the water supplier is responsible for the timely acceptance of the plan. These suppliers must submit the plan and applicable documentation directly to DWR.

## **B. Submission to the California State Library**

Complete AWMPs must also be submitted to the California State Library. Complete AWMPs include the plan and any applicable required supporting documentation/addendums.

Hardcopies or CDs should be mailed to:

California State Library  
Government Publications Section  
ATTN: Water Management Plan Coordinator  
P.O. Box 942837  
Sacramento, CA 94237-0001

Electronic copies (preferably Adobe .pdf files) should be emailed to:  
[cslgps@library.ca.gov](mailto:cslgps@library.ca.gov)

Include, "Agricultural Water Management Plan submission" in the subject line.

## 6.3 Guidance on Climate Change for Agricultural Water Management Plans

This section is provided as an example for compliance with SB X7-7 §10826 (c).

The potential effects of climate change would not only impact local areas but would also result in statewide changes that could affect the supplier and its water supplies.

Snowpack in the Sierra Nevada provides 65 percent of California's water supply. Estimates indicate that by 2050 the Sierra snowpack will be significantly reduced. Much of the precipitation is expected to fall as rain instead of snow during winter and cannot be stored in our current water system for later use. The climate is also expected to become more variable and extreme, bringing more droughts and floods. Agricultural water suppliers will need to be prepared to adapt to greater variability in weather patterns.

### A. Potential Climate Change Effects

Within the next 20 years, DWR expects that water supplies, water demand, sea level, and the occurrence and increased severity of floods will be affected by climate change. Some of these potential changes are presented below.

Water suppliers should consider the following climate change effects, many of which are already documented in California:

1. **Water Demand** — Shorter winters, more hot days and nights, and a longer irrigation season will increase water demand.
2. **Water Supply and Quality** — Reduced snowpack, shifting spring runoff to earlier in the year has the potential to impact water supply.
3. **Sea Level Rise** — The Delta will be at greater risk to increased salinity due to sea level rise. It is expected that sea level will continue to rise due to the warming of the oceans. This will result in near-shore ocean changes such as stronger storm surges, more forceful wave energy, and more extreme tides. This will also affect levee stability in low-lying areas and increase flooding.
4. **Disaster** — Disasters are expected to become more frequent as climate change brings increased climate variability, resulting in more extreme droughts and floods.

A thorough discussion in the AWMP is encouraged by agricultural water suppliers to address their potential actions and responses to these changes as part of addressing the effects of climate changes on future water supplies.

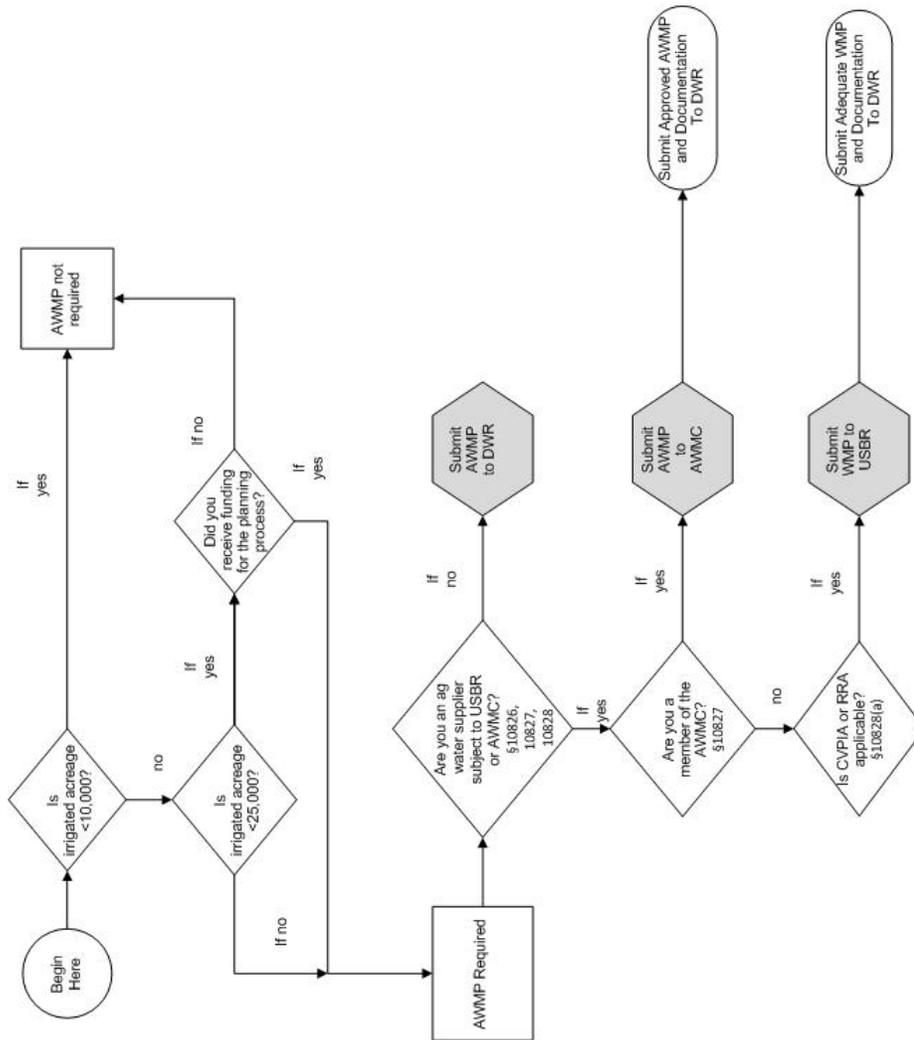
## **B. Specific points to consider**

1. Irrigation demand is likely to increase as temperatures rise and rainfall becomes more variable.
2. Permanent crops such as fruit and nut trees will be adversely affected by climate change and are not easily shifted to alternative crops. Areas with significant water demand from these crops may have reduced flexibility for adapting to changing climatic conditions.
3. Flooding risk is expected to increase as a result of more severe rainfall patterns and warmer winter rains. This could affect water supply and conveyance.
4. Snowpack is expected to significantly diminish as the climate warms. Diminished snowfall in the mountains and earlier runoff will result in reduced water supply availability for agricultural water suppliers that rely on this source of water. A water supply source that depends upon snow-melt and barely meets water demands under existing conditions is more likely to be vulnerable to climate change.
5. The Sacramento-San Joaquin River Delta is vulnerable to impacts of climate change, most notably sea level rise. Higher sea levels will make it more difficult to export water from the Delta with the existing infrastructure and may result in reduced water deliveries over time.

See "*Climate Change Handbook for Regional Water Planning*" (2011) for additional details:

<http://www.water.ca.gov/climatechange/CCHandbook.cfm>

## 6.4 AWMP and Ag Water Measurement Compliance Flow Charts



### AWMP Compliance Overview

Figure 1 AWMP Compliance Overview



## 6.5 Detailed Comparison of SB X7-7, AWMC MOU and USBR CVPIA Processes

	<b>SB X7-7</b>	<b>AWMC 1999 MOU</b>	<b>USBR CVPIA</b>
<b>1</b>	<b>Not Required (N/R)</b>	Step 1: Coordinate with other agencies and the public	<b>N/R</b>
<b>2</b>	<b>§10826.</b> An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following: (a) Describe the agricultural water supplier and the service area, including all of the following:	Step 2: Describe the water supplier	<b>Section 1</b> Description of the District
<b>3</b>	(1) Size of the service area.	A. History and size	<b>Section 1A</b> History
<b>4</b>	(2) Location of the service area and its water management facilities	B. Location and facilities	<b>Section 1B</b> Location and facilities
<b>5</b>	(3) Terrain and soils	C. Terrain and soils	<b>Section 1C</b> Topography and Soils
<b>6</b>	(4) Climate	D. Climate	<b>Section 1D</b> Climate
<b>7</b>	<b>N/R</b>	<b>N/R</b>	<b>Section 1E</b> Natural and Cultural Resources
<b>8</b>	(5) Operating rules and regulations	E. Operating rules and regulations	<b>Section 1F</b> Operating Rules and Regulations
<b>9</b>	(6) Water delivery measurements or calculations	F. Water delivery measurement or calculations	<b>Section 1G</b> Water Measurement, Pricing and Billing
<b>10</b>	(7) Water rate schedules and billing	G. Water rate schedules and billing	<b>Section 1G</b> Water Measurement, Pricing and Billing
<b>11</b>	(8) Water shortage allocation policies	H. Water shortage allocation policies	<b>Section 1H</b> Water Shortage Allocation Policies
<b>12</b>	(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:	Step 3: Inventory water resources	<b>Section 2</b> Inventory water resources
<b>13</b>	(1) Surface water supply	A. Surface water supply	<b>Section 2A</b> Surface Water Supply
<b>14</b>	(2) Groundwater supply	B. Groundwater supply	<b>Section 2B</b> Groundwater Supply
<b>15</b>	(3) Other water supplies	C. Other water supplies	<b>Section 2C</b> Other Water Supplies
<b>16</b>	(4) Source water quality monitoring practices	D. Source water quality monitoring practices	<b>Section 2D</b> Source Water Quality Monitoring Practices
<b>17</b>	(5) Water uses within the agricultural water supplier's service area, including all of the following:	E. Water uses within the water supplier's service area	<b>Section 2E</b> Water Uses with the District
<b>18</b>	(A) Agricultural	1. Agricultural	<b>Section 2E1</b> Agricultural
<b>19</b>	(B) Environmental	2. Environmental	<b>N/R</b>
<b>20</b>	(C) Recreational	3. Recreational	<b>N/R</b>
<b>21</b>	(D) Municipal and industrial	4. Municipal and industrial	<b>Section 2E2</b> Urban
<b>22</b>	(E) Groundwater recharge	5. Groundwater recharge	<b>Section 2E3</b> Groundwater

			Management Plan/Banking Programs
23	(F) Transfers and exchanges	6. Transfers and exchanges	<b>Section 2E4</b> Transfers, Exchanges, Rescheduling, Purchases, or Sales
24	(G) Other water uses	7. Other water uses	<b>Section 2E5</b> Other
25	(6) Drainage from the water supplier's service area	F. Drainage from the water supplier service area	<b>Section 2F</b> Outflow from the District
26	(7) Water accounting, including all of the following:	G. Water accounting	<b>Section 2G</b> Water Accounting
27	(A) Quantifying the water supplier's water supplies	1. Quantify water supplier's water supplies	<b>Section 2G1</b> Quantify Contractor's Water Supplies
28	(B) Tabulating water uses	2. Tabulate water uses	<b>Section 2G2</b> Quantify Water Used
29	(C) Overall water budget	3. Overall water budget	<b>Section 2G3</b> Overall Water Budget
30	(8) Water supply reliability	H. Supply reliability	<b>N/R</b>
31	(c) Include an analysis, based on available information, of the effect of climate change on future water supplies	<b>N/R</b>	<b>N/R</b>
32	(d) Describe previous water management activities	<b>N/R</b>	<b>N/R</b>
33	(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48	Step 5: Identify efficient water management practices	<b>Section 3A Critical BMPs for Agricultural Contractors</b>
34	<b>§10608.48.</b> (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c). (b) Agricultural water suppliers shall implement all of the following critical efficient management practices:	Step 8: Implement justified efficient water management practices	<b>Section 3A Critical BMPs for Agricultural Contractors</b>
35	<b>Chapter 3, Article 1, §10820</b> (a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.	<b>Exhibit A, List A</b>  1. Prepare and adopt a Water Management Plan using as a guideline Exhibit B of this Memorandum of Understanding for Agricultural Water Suppliers	<b>N/R</b>
36	<b>§10608.48 (a)(1)</b> Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2)	<b>Exhibit A, List C</b> 1. Water measurement and water use report.	<b>Section 3A1</b> Water Measurement
37	(2) Adopt a pricing structure for water customers based at least in part on quantity delivered	2. Pricing or other incentives.	<b>Section 3A4</b> Pricing Structure

38	(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:	(see below)	<b>Section 3B</b> Exemptible BMPs for Agricultural Contractors
39	(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage	<b>Exhibit A, List B</b> 1. Facilitate alternative land use	<b>Section 3B1</b> Facilitate Alternative Land Use
40	(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils	2. Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils.	<b>Section 3B2</b> Facilitate Use of Available Recycled Water that Otherwise Would Not be Used Beneficially, Meets all Health and Safety Criteria, and Does Not Cause Harm to Crops or Soils.
41	(3) Facilitate the financing of capital improvements for on-farm irrigation systems	3. Facilitate the financing of capital improvements for on-farm irrigation systems.	<b>Section 3B3</b> Facilitate the Financing of Capital Improvements for On-Farm Irrigation Systems.
42	<b>N/A</b>	4. Facilitate voluntary water transfers that do not unreasonably affect the water user, water supplier, the environment, or third parties.	<b>N/R</b>
43	(4) Implement an incentive pricing structure that promotes one or more of the following goals:	<b>Exhibit A, List C</b> 2. Pricing or other incentives.	<b>Section 3B4</b> Incentive Pricing
44	(A) More efficient water use at the farm level	b. A volumetric rate structure may be tiered, whereby the water supplier sets a higher price for that portion of water applied above crop evapotranspiration, leaching requirement, system evaporation, and other beneficial requirements.	<b>N/R</b>
45	(B) Conjunctive use of groundwater	c. A water supplier may implement a pricing arrangement or other financial incentives to improve the conjunctive use of surface and groundwater supplies.	<b>Section 3B9</b> Optimize Conjunctive Use
46	(C) Appropriate increase of groundwater recharge	(see above)	(see above)
47	(D) Reduction in problem drainage	<b>N/R</b>	<b>N/R</b>
48	(E) Improved management of environmental resources	<b>N/R</b>	<b>N/R</b>
49	(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current	<b>N/R</b>	<b>N/R</b>

	conditions		
50	(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage	<b>Exhibit A, List B</b> 5. Line pipe ditches and canals. (in part)	<b>N/R</b>
51	(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits	<b>Exhibit A, List B</b> 6. Increase flexibility in water ordering by, and delivery to, the water users within operational limits.	<b>Section 3B6</b> Increase Flexibility in Water Ordering By, and Delivery To, Water Users
52	(7) Construct and operate supplier spill and tailwater recovery systems	7. Construct and operate water supplier spill and tailwater recovery systems.	<b>Section 3B7</b> Construct and Operate Spill and Tailwater Recovery Systems
53	<b>N/R</b>	<b>N/R</b>	<b>Section 3B8</b> Plan to Measure Outflow
54	(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area	8. Optimize conjunctive use of surface and groundwater.	<b>Section 3B9</b> Optimize Conjunctive Use
55	(9) Automate canal control structures.	9. Automate canal structures.	<b>Section 3B10</b> Automate Distribution and/or Drainage System Structures
56	(10) Facilitate or promote customer pump testing and evaluation	<b>N/R</b>	<b>Section 3B11</b> Facilitate or Promote Water User Pump Testing and Evaluation
57	<b>N/R</b>	<b>N/R</b>	<b>Section 3B12</b> Mapping (GIS)
58	(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports	<b>Exhibit A, List A</b> 2. Designate a Water Conservation Coordinator	<b>Section 3A2</b> Designate the Water Conservation Coordinator
59	(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:	(see below)	<b>Section 3A3</b> Provide or Support the Availability of Water Management Services to Water Users
60	(A) On-farm irrigation and drainage system evaluations	<b>Exhibit A, List A</b> 3a. On-farm irrigation and drainage system evaluation	<b>Section 3A3a</b> On-farm evaluations
61	(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information	3b. Normal year and real-time irrigation scheduling and crop evapotranspiration information	<b>Section 3A3b</b> Normal year and real-time irrigation scheduling and crop ET information
62	(C) Surface water, groundwater, and drainage water quantity and quality data	3c. Surface water, groundwater, and drainage water quality data.	<b>Section 3A3c</b> Surface, ground, and drainage water quantity and quality data.
63	(D) Agricultural water management educational programs and materials for farmers, staff, and the public	3d. Educational programs and materials for famers, staff, and public	<b>Section 3A3d</b> Agricultural water management educational programs and material for farmers and staff, and the public.
	<b>N/R</b>	4. Where appropriate, improve	<b>N/R</b>

64		communication and cooperation among water suppliers, water users, and other agencies.	
65	(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage	<b>Exhibit A, List A</b> 5. Evaluate the need, if any, for changes in policies of the institutions to which the water supplier is subject.	<b>Section 1I</b> Evaluate Polices of Regulatory Agencies Affecting the Contractor and Identify Policies that Inhibit Good Water Management
66	(14) Evaluate and improve the efficiencies of the supplier's pumps.	<b>Exhibit A, List A</b> 3e. Water user pump testing and evaluation. 6. Evaluate and improve efficiencies of water suppliers' pumps.	<b>Section 3A5</b> Evaluate and Improve Efficiencies of Contractor's Pumps
67	N/R	Step 6: Develop schedules, budgets, and projected results	N/R
68	<b>§10608(d)</b> Agricultural water suppliers shall include in the AWMPs a report on which EWMPs have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. Submit documentation if an EWMPs is not locally cost effective or technically feasible.	<b>Exhibit E</b> "Net Benefit Analysis for EWMPs by Agricultural Water Suppliers", for evaluating which of the EWMPs are appropriate for their service area.	<b>Section 3B Exemptible BMPs for Agricultural Contractors</b> Each contractor shall implement the following BMPs, unless the contractor has an approved exemption from Reclamation. The contractor is required to follow the exemption process (see Addendum A) to justify exemptions. Refer to Addendum B for example justifications for each exemptible BMP. Document the exemption in this section.
69	<b>§10608(e)</b> The data shall be reported using a standardized form developed pursuant to §10608.52	N/R	N/R
70	<b>§10841 (Plan Review)</b> Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to <b>Section 6066</b> of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be	Step 7: Review, evaluate, and adopt the water management plan	<b>USBR</b> releases the plans for public comment after they are received from the water supplier and deemed adequate.

	afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing		
71	N/R	Step 9: Monitor, evaluate, and update the water management plan	N/R
72	<p><b>§10608.48(g)</b> on or before December 31, 2013, and December 31, 2016, and December 31, 2021, DWR, in consultation with the Water Board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented, and an assessment how those measures have affected and will affect agricultural operations, and estimated water use efficiency improvements, if any.</p> <p><b>§10845</b> DWR shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and one, a report summarizing the status of the plans adopted.</p>	N/R	<p>N/R – No Congressional report required.</p> <p>A <b>Ten-year</b> progress report was issued in 2004 for years 1993-2002, and covered all aspects of CVPIA.</p>
73	<b>§10608.56</b> On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.	N/R	<b>Consequences of Non-Compliance (2011 Standard Criteria)</b> An adequate Plan must be in place before Reclamation will consider extending any discretionary benefits, such as financial and technical assistance. Consequences of noncompliance may include, but are not limited to ineligibility for any Reclamation grants.

## 6.6 Annual Aggregated Farm-Gate Delivery Report

The Agricultural Aggregated Farm-Gate Delivery Report is required under the AB 1404 (CWC 531.10) ; however, it does not need to be included in the AWMP or alternate plans for compliance with SB X7-7 agriculture management planning. It is due annually on July 31 of each year, beginning in 2013 and each year thereafter. The form can be found on DWR’s web site at:

<http://www.water.ca.gov/wateruseefficiency/agricultural/farmgatedelivery.cfm>

### A. Guidance for Compliance with the Requirements of submitting Agricultural Aggregated Farm-Gate Delivery Report

1. Agricultural Water Suppliers, as defined by the SB X7-7 as greater than 25,000 irrigated acres (or greater than 10,000 irrigated acres if funding is available) are required to measure water delivery to its customers and send an annual report to DWR. The water suppliers use the Form Article 2 to submit data to DWR.
2. Water suppliers (as defined by AB 1404, in CWC **§531.10**) that are less than 10,000 irrigated acres (or less than 25,000 acres if no funding is available) and greater than 2,000 irrigated acres are to measure water deliveries and report annually to DWR and use the same form, however, only if measurement is locally cost effective and using best professional practices.

### B. Definitions of Terms (from AB 1404 and SB X7-7)

#### **Agricultural Water Supplier:**

For the purpose of AB1404 requirements, CWC **§531.1** defines “agricultural water supplier” as “a supplier either publicly or privately owned, supplying 2,000 acre-feet or more of surface water annually for agricultural purposes or serving 2,000 or more acres of agricultural land. An agricultural water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells water for ultimate resale to customers” (CWC **§531.b**)

For the purpose of SB X7-7 requirements (Article 2), **§10608.12(a)** defines “agricultural water supplier” as “a water supplier, either publically or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. “Agricultural water supplier” includes a supplier or contractor for water, regardless of the basis of right that distributes or sells water for ultimate resale to customers. “Agricultural water supplier” does not include the department.”

#### **Aggregated Farm-Gate Delivery Data:**

“Aggregated farm-gate delivery data” means information reflecting the total volume of water an agricultural water supplier provides to its customers and is calculated by totaling its deliveries to individual customers (CWC **§531.a**)

#### **Farm-gate:**

“Farm-gate” means the point at which water is delivered from the agricultural water supplier’s distribution system to each of its customers (CWC **§531.f**).

**Best Professional Practices:**

“Best professional practices” means practices attaining and maintaining accuracy of measurement and reporting devices and methods (CWC §531.d). This definition applies to agricultural water suppliers <10,000 acres (and less than 25,000 acres if no funding is made available to the water supplier).

“Best professional practices” means practices attaining to and maintaining accuracy of measurement and reporting devices and methods described in this article, such as operation and maintenance procedures and practices recommended by measurement device manufacturers, designers, and industry professionals (CCR 23 §597.2(a)(4)). This definition applies to agricultural water suppliers ≥10,000 acres.

**Not Locally Cost-Effective:**

The present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure. (SB X7-7 §10631.5 (a)(4)(B))

**C. What Must an Agricultural Water Supplier Do to be Compliant with AB 1404 and SB X7-7 (Article 2)?**

1. For those agricultural water suppliers providing farm-gate delivery data to DWR, they must:
  - a) Provide DWR with aggregated monthly or bimonthly farm-gate deliveries on an annual basis, and
  - b) Provide DWR with information on their farm-gate measurement program or practices to document that
    - i. They are using “Best Professional Practices” if they are suppliers providing water to less than 25,000 irrigated acres, excluding acres that receive only recycled water.
    - ii. They measure water delivered to customers in accordance with DWR’s agriculture water measurement regulation if they are suppliers providing water to more than 25,000 irrigated acres, excluding acres that receive only recycled water.
    - iii. They measure water delivered to customers in accordance with DWR’s agriculture water measurement regulation when funding is provided to them for the purpose, if they are suppliers providing water to 10,000 or more irrigated acres but less than 25,000 irrigated acres, excluding acres that receive only recycled water.
2. For those agricultural water suppliers greater than 2,000 acres not providing farm-gate delivery data to DWR, they must provide DWR with information that documents that the implementation of a program or practices to measure farm-gate deliveries using Best Professional Practices is not locally cost effective. Reporting is mandatory (local cost effectiveness does not apply) for those suppliers that provide water to more than 25,000 irrigated acres, excluding acres that receive only recycled water, and for those providing water to 10,000 or more irrigated acres but less than 25,000 irrigated acres, when funding is provided for the purpose of measurement.

## D. Reporting Required Information

Agricultural water suppliers must submit the required information listed below to DWR using the *Agricultural Aggregated Farm-Gate Delivery Reporting Format* (see Figure 3 in Chapter 6.9)

- Report basic information about the water supplier.
- Report the water supplier representative's contact information.
- Report of the monthly or bimonthly aggregated farm-gate deliveries and to identify the Best Professional Practices used
- Provide DWR with comments and explanations if the implementation of a farm-gate measurement program or practices using Best Professional Practices are not locally cost effective.

## E. Information of “Best Professional Practices” and “Not Locally Cost Effective” for purpose of water suppliers <10,000 irrigated acres to comply with AB 1404

AB1404 defines “Best Professional Practices” as “Practices attaining and maintaining accuracy of measurement and reporting devices and methods”. It does not specify any method of measurement. The Water Code defines “Not Locally Cost Effective” as “The present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure”. The Water Code does not require DWR to develop any methods, or standards on “Best Professional Practices” or “Not Locally Cost Effective”, nor does it to require water suppliers to use any specific water measurement methods. The Water Code does not require DWR to evaluate or review any information provided by agricultural water suppliers.

As a technical assistance to water suppliers, DWR is providing different sources of information on “Best Professional Practices” and “Not Locally Cost Effective” to water suppliers.

The final report, “Independent Panel on Appropriate Measurement of Agricultural Water Use” (September 2003) contains information pertaining to farm-gate deliveries that could help a local water supplier in gaining more understanding about measurement programs and practices and their accuracies. It also includes some information related to costs and benefits of measurement programs and practices that might be helpful. The report can be found at [http://calwater.ca.gov/calfed/library/Archive\\_WUE.html](http://calwater.ca.gov/calfed/library/Archive_WUE.html).

The Agricultural Water Management Council's website contains information on measurement and has links to other sites with additional information on water measurement. The website is located at <http://www.agwatercouncil.org/Measurement/Measurement-Resources/menu-id-69.html>.

Members of the Agricultural Water Management Council may also use the Net Benefit Analysis Tool to determine local cost effectiveness for water measurement. This method can be found on the Agricultural Water Management Council's web site at <http://www.agwatercouncil.org/>

## **F. Submitting the Annual Report**

The completed form must be submitted by mail or e-mail to DWR each year beginning July 1, 2013.

The completed forms should be sent to the following address:

Department of Water Resources  
Water Use and Efficiency Branch  
Agricultural Water Use Efficiency Unit  
P.O. Box 942836  
Sacramento, CA 94236  
Attention: Fethi BenJemaa

The completed electronic form may be submitted by e-mail to Fethi BenJemaa at [jemaa@water.ca.gov](mailto:jemaa@water.ca.gov)

Any future submittal updates may be found on DWR's website at <http://www.water.ca.gov/wateruseefficiency/>

## **6.7 Legislative History, Current Legislation and Regulations, and Related Programs**

### **A. Legislative History**

#### **1. AB 3616 Agricultural Efficient Water Management Act of 1990**

This legislation required DWR to establish an advisory committee consisting of state, federal, and local agencies; agricultural communities, California university system; environmental and public interest groups; and other interested parties to develop a list of efficient water management practices for agricultural water suppliers. In addition, then California Governor Pete Wilson directed the AB 3616 Advisory Committee to develop a Memorandum of Understanding between the agricultural and environmental communities and other interested parties to further address efficient use of agricultural water in California.

#### **2. Water Code §531.1 - AB 1404 (2007) Water Measurement Information**

The AB 1404 requires agricultural water suppliers to submit to DWR an annual report that includes measured aggregated farm-gate deliveries data on a monthly or bi-monthly basis. The submittals are also to include farm-gate measurement programs or practices to document implementation of “Best Professional Practices” (BMPs). If water measurement is not locally cost-effective, then the agricultural water supplier may provide supporting documentation to DWR.

### **B. Current Legislation and Regulations**

#### **1. Water Conservation Bill of 2009 (SB X7-7)**

#### **2. Agricultural Water Measurement**

(Title 23 California Code of Regulations, §597 et seq., 2011)

### **C. Related Programs**

#### **1. California Water Plan Update**

<http://www.waterplan.water.ca.gov/cwpu2013/index.cfm>

#### **2. California Agricultural Water Management Council Efficient Water Management Practices (EWMPs)**

#### **3. Integrated Regional Water Management Plans**

<http://www.water.ca.gov/irwm/index.cfm>

#### **4. Bureau of Reclamation Water Conservation Plans (CVPIA).**

For the updated 2011 Standard Criteria, see:

[http://www.usbr.gov/mp/watershare/documents/Water\\_mgmt/index.html](http://www.usbr.gov/mp/watershare/documents/Water_mgmt/index.html)

#### **5. Bureau of Reclamation RRA Plans**

<http://www.usbr.gov/rra/>

**6. Bureau of Reclamation 2008 Conservation Efficiency Standards  
(PL 102-575)**

[http://www.usbr.gov/mp/cvpia/title\\_34/public\\_law\\_complete.html](http://www.usbr.gov/mp/cvpia/title_34/public_law_complete.html)

## 6.8 Text of CWC (SBX 7-7) Pertaining to Agricultural Water Suppliers

[Indentations added for clarity]

### **Chapter 4. Agricultural Water Suppliers**

10608.48.

*(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).*

*(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:*

*(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).*

*(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.*

*(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:*

*(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.*

*(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.*

*(3) Facilitate the financing of capital improvements for on-farm irrigation systems.*

*(4) Implement an incentive pricing structure that promotes one or more of the following goals:*

*(A) More efficient water use at the farm level.*

*(B) Conjunctive use of groundwater.*

*(C) Appropriate increase of groundwater recharge.*

*(D) Reduction in problem drainage.*

*(E) Improved management of environmental resources.*

*(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.*

*(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.*

*(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.*

*(7) Construct and operate supplier spill and tailwater recovery systems.*

*(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.*

*(9) Automate canal control structures.*

*(10) Facilitate or promote customer pump testing and evaluation.*

*(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.*

*(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:*

*(A) On-farm irrigation and drainage system evaluations.*

*(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.*

*(C) Surface water, groundwater, and drainage water quantity and quality data.*

*(D) Agricultural water management educational programs and materials for farmers, staff, and the public.*

*(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.*

*(14) Evaluate and improve the efficiencies of the supplier's pumps.*

*(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.*

*(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.*

*(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.*

*(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.*

*(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.*

*(i)*

*(1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).*

*(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.*

## **Chapter 5. Sustainable Water Management**

10608.50.

*(a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:*

*(1) Revisions to the requirements for urban and agricultural water management plans.*

*(2) Revisions to the requirements for integrated regional water management plans.*

*(3) Revisions to the eligibility for state water management grants and loans.*

*(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.*

*(5) Increased funding for research, feasibility studies, and project construction.*

*(6) Expanding technical and educational support for local land use and water management agencies.*

*(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.*

*10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.*

## **PART 2.8. AGRICULTURAL WATER MANAGEMENT PLANNING**

### **Chapter 1. General Declarations and Policy**

*10800. This part shall be known and may be cited as the Agricultural Water Management Planning Act.*

*10801. The Legislature finds and declares all of the following:*

*(a) The waters of the state are a limited and renewable resource.*

*(b) The California Constitution requires that water in the state be used in a reasonable and beneficial manner.*

*(c) Urban water districts are required to adopt water management plans.*

*(d) The conservation of agricultural water supplies is of great statewide concern.*

*(e) There is a great amount of reuse of delivered water, both inside and outside the water service areas.*

*(f) Significant noncrop beneficial uses are associated with agricultural water use, including streamflows and wildlife habitat.*

*(g) Significant opportunities exist in some areas, through improved irrigation water management, to conserve water or to reduce the quantity of highly saline or toxic drainage water.*

*(h) Changes in water management practices should be carefully planned and implemented to minimize adverse effects on other beneficial uses currently being served.*

*(i) Agricultural water suppliers that receive water from the federal Central Valley Project are required by federal law to prepare and implement water conservation plans.*

*(j) Agricultural water users applying for a permit to appropriate water from the board are required to prepare and implement water conservation plans.*

*10802. The Legislature finds and declares that all of the following are the policies of the state:*

*(a) The conservation of water shall be pursued actively to protect both the people of the state and the state's water resources.*

*(b) The conservation of agricultural water supplies shall be an important criterion in public decisions with regard to water.*

*(c) Agricultural water suppliers shall be required to prepare water management plans to achieve conservation of water.*

## **Chapter 2. Definitions**

*10810. Unless the context otherwise requires, the definitions set forth in this chapter govern the construction of this part.*

*10811. "Agricultural water management plan" or "plan" means an agricultural water management plan prepared pursuant to this part.*

*10812. "Agricultural water supplier" has the same meaning as defined in Section 10608.12.*

*10813. "Customer" means a purchaser of water from a water supplier who uses water for agricultural purposes.*

*10814. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of that entity.*

*10815. "Public agency" means any city, county, city and county, special district, or other public entity.*

*10816. "Urban water supplier" has the same meaning as set forth in Section 10617.*

10817. "Water conservation" means the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water.

### **Chapter 3. Agricultural Water Management Plans**

#### **Article 1. General Provisions**

10820.

*(a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.*

*(b) Every supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt an agricultural water management plan within one year after the date it has become an agricultural water supplier.*

*(c) A water supplier that indirectly provides water to customers for agricultural purposes shall not prepare a plan pursuant to this part without the consent of each agricultural water supplier that directly provides that water to its customers.*

10821.

*(a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.*

*(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840).*

#### **Article 2. Contents of Plans**

10825.

*(a) It is the intent of the Legislature in enacting this part to allow levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.*

*(b) This part does not require the implementation of water conservation programs or practices that are not locally cost effective.*

10826. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following:

*(a) Describe the agricultural water supplier and the service area, including all of the following:*

- (1) Size of the service area.*
- (2) Location of the service area and its water management facilities.*
- (3) Terrain and soils.*
- (4) Climate.*
- (5) Operating rules and regulations.*
- (6) Water delivery measurements or calculations.*
- (7) Water rate schedules and billing.*
- (8) Water shortage allocation policies.*

*(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*

- (1) Surface water supply.*
- (2) Groundwater supply.*
- (3) Other water supplies.*
- (4) Source water quality monitoring practices.*
- (5) Water uses within the agricultural water supplier's service area, including all of the following:*
  - (A) Agricultural.*
  - (B) Environmental.*
  - (C) Recreational.*
  - (D) Municipal and industrial.*
  - (E) Groundwater recharge.*
  - (F) Transfers and exchanges.*
  - (G) Other water uses.*
- (6) Drainage from the water supplier's service area.*
- (7) Water accounting, including all of the following:*

*(A) Quantifying the water supplier's water supplies.*

*(B) Tabulating water uses.*

*(C) Overall water budget.*

*(8) Water supply reliability.*

*(c) Include an analysis, based on available information, of the effect of climate change on future water supplies.*

*(d) Describe previous water management activities.*

*(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48.*

*10827. Agricultural water suppliers that are members of the Agricultural Water Management Council, and that submit water management plans to that council in accordance with the "Memorandum of Understanding Regarding Efficient Water Management Practices By Agricultural Water Suppliers In California," dated January 1, 1999, may submit the water management plans identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of Section 10826.*

*10828.*

*(a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, may submit those water conservation plans to satisfy the requirements of Section 10826, if both of the following apply:*

*(1) The agricultural water supplier has adopted and submitted the water conservation plan to the United States Bureau of Reclamation within the previous four years.*

*(2) The United States Bureau of Reclamation has accepted the water conservation plan as adequate.*

*(b) This part does not require agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, to prepare and adopt water conservation plans according to a schedule that is different from that required by the United States Bureau of Reclamation.*

*10829. An agricultural water supplier may satisfy the requirements of this part by adopting an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) or by participation in areawide, regional, watershed, or basinwide water management planning if those plans meet or exceed the requirements of this part.*

### **Article 3. Adoption and Implementation of Plans**

10840. Every agricultural water supplier shall prepare its plan pursuant to Article 2 (commencing with Section 10825).

10841. Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

10842. An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.

10843.

(a) An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes.

(b) An agricultural water supplier shall submit a copy of its plan and amendments or changes to the plan to each of the following entities:

(1) The department.

(2) Any city, county, or city and county within which the agricultural water supplier provides water supplies.

(3) Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

(4) Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

(5) Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.

10844.

*(a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.*

*(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site.*

10845.

*(a) The department shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and years ending in one, a report summarizing the status of the plans adopted pursuant to this part.*

*(b) The report prepared by the department shall identify the outstanding elements of any plan adopted pursuant to this part. The report shall include an evaluation of the effectiveness of this part in promoting efficient agricultural water management practices and recommendations relating to proposed changes to this part, as appropriate.*

*(c) The department shall provide a copy of the report to each agricultural water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearing designed to consider the effectiveness of plans submitted pursuant to this part.*

*(d) This section does not authorize the department, in preparing the report, to approve, disapprove, or critique individual plans submitted pursuant to this part.*

#### **Chapter 4. Miscellaneous Provisions**

10850.

*(a) Any action or proceeding to attack, review, set aside, void, or annul the acts or decisions of an agricultural water supplier on the grounds of noncompliance with this part shall be commenced as follows:*

*(1) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.*

*(2) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 120 days after submitting the plan or amendments to the plan to entities in accordance with Section 10844 or the taking of that action.*

*(b) In an action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an agricultural water supplier, on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the agricultural water supplier has not proceeded in a manner required by law, or if the action by the agricultural water supplier is not supported by substantial evidence.*

*10851. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part. This part does not exempt projects for implementation of the plan or for expanded or additional water supplies from the California Environmental Quality Act.*

*10852. An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.*

*10853. No agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to implement the requirements of this part or Part 2.55 (commencing with Section 10608) unless sufficient funding has specifically been provided to that water supplier for these purposes.*

*SEC. 5. This act shall take effect only if Senate Bill 1 and Senate Bill 6 of the 2009–10 Seventh Extraordinary Session of the Legislature are enacted and become effective.*

## 6.9 California Code of Regulations, Title 23, §597 et seq. Agricultural Water Measurement

<http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a2/>

### **§597. Agricultural Water Measurement**

Under the authority included under California Water Code §10608.48(i)(1), the Department of Water Resources (Department) is required to adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirements in paragraph (1) of subdivision (b) of §10608.48.

For reference, §10608.48(b) of the California Water Code states that:

Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

For further reference, §531.10(a) of the California Water Code requires that:

(a) An agricultural water supplier shall submit an annual report to the department that summarizes aggregated farm-gate delivery data, on a monthly or bi-monthly basis, using best professional practices.

### Notes:

(1) Paragraphs (1) and (2) of §10608.48(b) specify agricultural water suppliers' reporting of aggregated farm-gate water delivery and adopting a volumetric water pricing structure as the purposes of water measurement. However, this article only addresses developing a range of options for water measurement.

(2) Agricultural water suppliers reporting agricultural water deliveries measured under this article shall use the "Agricultural Aggregated Farm – Gate Delivery Reporting Format for Article 2" (Rev. 6-20-12), developed for this article and hereby incorporated by reference.

(3) The Department shall report on the availability of new commercially available water measurement technologies and impediments to implementation of this article when reporting to the Legislature the status of adopted Agricultural Water Management Plans in plan submittal years 2012, 2015 and every five years thereafter as required by California Water Code §10845. The Department shall also report the findings to the California Water Commission.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 531.10, 10608.48 (b), 10608.48 (i), 10608.52 (b) and 10845 Water Code.

### **§597.1. Applicability**

- (a) An agricultural water supplier providing water to 25,000 irrigated acres or more, excluding acres that receive only recycled water, is subject to this article.
- (b) A wholesale agricultural water supplier providing water to another agricultural water supplier (the receiving water supplier) for ultimate resale to customers is subject to this article at the location at which control of the water is transferred to the receiving water supplier. However, the wholesale agricultural water supplier is not required to measure the receiving agricultural water supplier's deliveries to its customers.
- (c) A water supplier providing water to wildlife refuges or habitat lands where (1) the refuges or habitat lands are under a contractual relationship with the water supplier, and (2) the water supplier meets the irrigated acreage criteria of Water Code §10608.12(a), is subject to this article.
- (d) An agricultural water supplier providing water to less than 10,000 irrigated acres, excluding acres that receive only recycled water, is not subject to this article.
- (e) An agricultural water supplier providing water to 10,000 or more irrigated acres but less than 25,000 irrigated acres, excluding acres that receive only recycled water, is not subject to this article unless sufficient funding is provided specifically for that purpose, as stated under Water Code §10853.
- (f) A canal authority or other entity that conveys or delivers water through facilities owned by a federal agency is not subject to this article.
- (g) Pursuant to Water Code §10608.8(d), an agricultural water supplier “that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect,” is not subject to this article.
- (h) Pursuant to Water Code §10608.12(a), the Department is not subject to this article.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 10608.12 (a), 10608.48 (d), 10608.48 (f), 10828, and 10853 Water Code.

## **§597.2. Definitions**

### **(a) For purposes of this article, the terms used are defined in this section.**

- (1) “Accuracy” means the measured volume relative to the actual volume, expressed as a percent. The percent shall be calculated as  $100 \times (\text{measured value} - \text{actual value}) / \text{actual value}$ , where “measured value” is the value indicated by the device or determined through calculations using a measured value by the device, such as flow rate, combined with a duration of flow, and “actual value” is the value as determined through laboratory, design or field testing protocols using best professional practices.
- (2) “Agricultural water supplier,” as defined in Water Code §10608.12(a), means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding acres that receive only recycled water. “Agricultural water supplier” includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells water for ultimate resale to customers. “Agricultural water supplier” does not include the Department.
- (3) “Approved by an engineer” means a California-registered Professional Engineer has reviewed, signed and stamped the plans, design, testing, inspection, and/or documentation report for a measurement device as described in this article.
- (4) “Best professional practices” means practices attaining to and maintaining accuracy of measurement and reporting devices and methods described in this article, such as operation and maintenance procedures and practices recommended by measurement device manufacturers, designers, and industry professionals.
- (5) “Customer” means the purchaser of water from an agricultural water supplier who has a contractual arrangement with the agricultural water supplier for the service of conveying water to the customer delivery point.
- (6) “Delivery point” means the location at which the agricultural water supplier transfers control of delivered water to a customer or group of customers. In most instances, the transfer of control occurs at the farm-gate, which is therefore, a delivery point.
- (7) “Existing measurement device,” means a measurement device that was installed in the field prior to the effective date of this article.
- (8) “Farm-gate,” as defined in Water Code §531(f), means the point at which water is delivered from the agricultural water supplier’s distribution system to each of its customers.

(9) “Irrigated acres,” for purposes of applicability of this article, is calculated as the average of the previous five-year acreage within the agricultural water supplier’s service area that has received irrigation water from the agricultural water supplier.

(10) “Manufactured device” means a device that is manufactured by a commercial enterprise, often under exclusive legal rights of the manufacturer, for direct off-the-shelf purchase and installation. Such devices are capable of directly measuring flow rate, velocity, or accumulating the volume of water delivered, without the need for additional components that are built on-site or in-house.

(11) “Measurement device” means a device by which an agricultural water supplier determines the numeric value of flow rate, velocity or volume of the water passing a designated delivery point. A measurement device may be a manufactured device, on-site built device or in-house built device.

(12) “New or replacement measurement device” means a measurement device installed after the effective date of this article.

(13) “Recycled water” is defined in subdivision (n) of §13050 of the Water Code as water that, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur, and is therefore considered a valuable resource.

(14) “Type of device” means a measurement device that is manufactured or built to perform similar functions. For example, rectangular, v-notch, and broad crested weirs are one type of device. Similarly, all submerged orifice gates are considered one type of device.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 10608.12 (a), 10608.12 (m), 10608.48, and 10813 Water Code.

### **§597.3 Range of Options for Agricultural Water Measurement**

An agricultural water supplier subject to this article shall measure surface water and groundwater that it delivers to its customers pursuant to the accuracy standards in this section. The supplier may choose any applicable single measurement option or combination of options listed in paragraphs (a) or (b) of this section. Measurement device accuracy and operation shall be certified, tested, inspected and/or analyzed as described in §597.4 of this article.

#### **(a) Measurement Options at the Delivery Point or Farm-gate of a Single Customer**

An agricultural water supplier shall measure water delivered at the delivery point or farm-gate of a single customer using one of the following measurement options. The stated numerical accuracy for each measurement option is for the volume delivered. If a device measures a value other than volume, for example, flow rate,

velocity or water elevation, the accuracy certification must incorporate the measurements or calculations required to convert the measured value to volume as described in §597.4(e).

(1) An existing measurement device shall be certified to be accurate to within ±12% by volume.

and.

(2) A new or replacement measurement device shall be certified to be accurate to within:

(A) ±5% by volume in the laboratory if using a laboratory certification; (B) ±10% by volume in the field if using a non-laboratory certification.

**(b) Measurement Options at a Location Upstream of the Delivery Points or Farm-gates of Multiple Customers**

(1) An agricultural water supplier may measure water delivered at a location upstream of the delivery points or farm-gates of multiple customers using one of the measurement options described in §597.3(a) if the downstream individual customer's delivery points meet either of the following conditions:

(A) The agricultural water supplier does not have legal access to the delivery points of individual customers or group of customers needed to install, measure, maintain, operate, and monitor a measurement device.

Or,

(B) An engineer determines that, due to small differentials in water level or large fluctuations in flow rate or velocity that occur during the delivery season at a single farm-gate, accuracy standards of measurement options in §597.3(a) cannot be met by installing a measurement device or devices (manufactured or on-site built or in-house built devices with or without additional components such as gauging rod, water level control structure at the farm- gate, etc.). If conditions change such that the accuracy standards of measurement options in §597.3(a) at the farm-gate can be met, an agricultural water supplier shall include in its Agricultural Water Management Plan, a schedule, budget and finance plan to demonstrate progress to measure water at the farm-gate in compliance with §597.3(a) of this article.

(2) An agricultural water supplier choosing an option under paragraph (b)(1) of this section shall provide the following current documentation in its Agricultural Water Management Plan(s) submitted pursuant to Water Code §10826:

(A) When applicable, to demonstrate lack of legal access at delivery points of individual customers or group of customers downstream of the point of measurement, the agricultural water supplier's legal counsel shall certify to the Department that it does not have legal access to measure water at customers delivery points and that it has sought and been denied access from its customers to measure water at those points.

(B) When applicable, the agricultural water supplier shall document the water measurement device unavailability and that the water level or flow conditions described in §597.3(b)(1)(B) exist at individual customer's delivery points downstream of the point of measurement as approved by an engineer.

(C) The agricultural water supplier shall document all of the following criteria about the methodology it uses to apportion the volume of water delivered to the individual downstream customers:

(i) How it accounts for differences in water use among the individual customers based on but not limited to the duration of water delivery to the individual customers, annual customer water use patterns, irrigated acreage, crops planted, and on-farm irrigation system.

and;

(ii) That it is sufficient for establishing a pricing structure based at least in part on the volume delivered.

and;

(iii) That it was approved by the agricultural water supplier's governing board or body.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 531.10, 10608.48 (i) (1), and 10826 Water Code.

#### **§597.4 Accuracy Certification, Records Retention, Device Performance, and Reporting**

##### **(a) Initial Certification of Device Accuracy**

The accuracy of an existing, new or replacement measurement device or type of device, as required in §597.3, shall be initially certified and documented as follows:

(1) For existing measurement devices, the device accuracy required in section 597.3(a) shall be initially certified and documented by either:

(A) Field-testing that is completed on a random and statistically representative sample of the existing measurement devices as described in §597.4(b)(1) and §597.4(b)(2). Field-testing shall be performed by individuals trained in the use of field-testing equipment, and documented in a report approved by an engineer.

Or,

(B) Field-inspections and analysis completed for every existing measurement device as described in §597.4(b)(3). Field-inspections and analysis shall be performed by trained individuals in the use of field inspection and analysis, and documented in a report approved by an engineer.

(2) For new or replacement measurement devices, the device accuracy required in sections 597.3 (a)(2) shall be initially certified and documented by either:

(A) Laboratory Certification prior to installation of a measurement device as documented by the manufacturer or an entity, institution or individual that tested the device following industry-established protocols such as the National Institute for Standards and Testing (NIST) traceability standards. Documentation shall include the manufacturer's literature or the results of laboratory testing of an individual device or type of device.

Or,

(B) Non-Laboratory Certification after the installation of a measurement device in the field, as documented by either:

(i) An affidavit approved by an engineer submitted to the agricultural water supplier of either (1) the design and installation of an individual device at a specified location, or (2) the standardized design and installation for a group of measurement devices for each type of device installed at specified locations.

Or,

(ii) A report submitted to the agricultural water supplier and approved by an engineer documenting the field-testing performed on the installed measurement device or type of device, by individuals trained in the use of field testing equipment.

**(b) Protocols for Field-Testing and Field-Inspection and Analysis of Existing Devices**

(1) Field-testing shall be performed for a sample of existing measurement devices according to manufacturer's recommendations or design specifications and following best professional practices. It is recommended that the sample size be no less than 10% of existing devices, with a minimum of 5, and not to exceed 100 individual devices for any particular device type. Alternatively, the supplier may develop its own sampling plan using an accepted statistical methodology.

(2) If during the field-testing of existing measurement devices, more than one quarter of the samples for any particular device type do not meet the criteria pursuant to §597.3(a), the agricultural water supplier shall provide in its Agricultural Water

Management Plan, a plan to test an additional 10% of its existing devices, with a minimum of 5, but not to exceed an additional 100 individual devices for the particular device type. This second round of field-testing and corrective actions shall be completed within three years of the initial field-testing.

(3) Field-inspections and analysis protocols shall be performed and the results shall be approved by an engineer for every existing measurement device to demonstrate that the design and installation standards used for the installation of existing measurement devices meet the accuracy standards of §597.3(a) and operation and maintenance protocols meet best professional practices.

**(c) Records Retention**

Records documenting compliance with the requirements in §597.3 and §597.4 shall be maintained by the agricultural water supplier for ten years or two Agricultural Water Management Plan cycles.

**(d) Performance Requirements**

(1) All measurement devices shall be correctly installed, maintained, operated, inspected, and monitored as described by the manufacturer, the laboratory or the registered Professional Engineer that has signed and stamped certification of the device, and pursuant to best professional practices.

(2) If an installed measurement device no longer meets the accuracy requirements of §597.3(a) based on either field-testing or field-inspections and analysis as defined in sections 597.4 (a) and (b) for either the initial accuracy certification or during operations and maintenance, then the agricultural water supplier shall take appropriate corrective action, including but not limited to, repair or replacement to achieve the requirements of this article.

**(e) Reporting in Agricultural Water Management Plans**

Agricultural water suppliers shall report the following information in their Agricultural Water Management Plan(s):

(1) Documentation as required to demonstrate compliance with §597.3 (b), as outlined in section §597.3(b)(2), and §597.4(b)(2).

(2) A description of best professional practices about, but not limited to, the (1) collection of water measurement data, (2) frequency of measurements, (3) method for determining irrigated acres, and (4) quality control and quality assurance procedures.

(3) If a water measurement device measures flow rate, velocity or water elevation, and does not report the total volume of water delivered, the agricultural water supplier must document in its Agricultural Water Management Plan how it converted the

measured value to volume. The protocols must follow best professional practices and include the following methods for determining volumetric deliveries:

(A) For devices that measure flow-rate, documentation shall describe protocols used to measure the duration of water delivery where volume is derived by the following formula: Volume = flow rate x duration of delivery.

(B) For devices that measure velocity only, the documentation shall describe protocols associated with the measurement of the cross-sectional area of flow and duration of water delivery, where volume is derived by the following formula: Volume = velocity x cross-section flow area x duration of delivery.

(C) For devices that measure water elevation at the device (e.g. flow over a weir or differential elevation on either side of a device), the documentation shall describe protocols associated with the measurement of elevation that was used to derive flow rate at the device. The documentation will also describe the method or formula used to derive volume from the measured elevation value(s).

(4) If an existing water measurement device is determined to be out of compliance with §597.3, and the agricultural water supplier is unable to bring it into compliance before submitting its Agricultural Water Management Plan in December 2012, the agricultural water supplier shall provide in its 2012 plan, a schedule, budget and finance plan for taking corrective action in three years or less.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 531.10, 10608.48 (i) (1), and 10826 Water Code.

### Agricultural Aggregated Farm-Gate<sup>1</sup> Delivery Reporting Format for Article 2

*Due annually beginning no later than July 31, 2013 from agricultural water suppliers subject to Title 23, Division 2, Chapter 5.1, Article 2 of the CCR - Agricultural Water Measurement*

#### 1. Water Supplier Information

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Fax: \_\_\_\_\_  
 Total Number of Farm-Gates: \_\_\_\_\_  
 Number of Measured Farm-Gates: \_\_\_\_\_  
 Service Area Acreage: \_\_\_\_\_

#### 2. Contact Information

Name: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_  
 Submittal date: \_\_\_\_\_

#### 3. Aggregated Farm-Gate Delivery Data<sup>2</sup>: (provide monthly or bimonthly data, acre-feet)

		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Monthly Deliveries														
Bimonthly Deliveries		Jul-Aug		Sep-Oct		Nov-Dec		Jan-Feb		Mar-Apr		May-Jun		Total

#### 4. Explanations, Comments and Best Professional Practices<sup>3</sup>:

**Note:** An agricultural water supplier's total water use may be different from Aggregated Farm-Gate deliveries because measurement at these points may not account for other practices (such as groundwater recharge/conjunctive use, water transfers, wheeling to other agencies, urban use, etc).

1. "Farm-gate" means the point at which water is delivered from the agricultural water supplier's distribution system to each of its individual customers as specified in the Agricultural Water Measurement Regulation (Title 23, Division 2, Chapter 5.1, Article 2 of the CCR).

2. "Aggregated farm-gate delivery data" means information reflecting the total volume of water an agricultural water supplier provides to its customers and is calculated by totaling its deliveries to customers.

3. "Best Professional Practices" is defined in Title 23, Division 2, Chapter 5.1, Article 2 of the CCR, Section 587.2.

Figure 3 Aggregated Farm-gate Delivery Report

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## Frequently Asked Questions (FAQs)

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Q1: Who has to submit an Agricultural Water Management Plan (AWMP)?

A1: The law specifies agricultural water suppliers that provide water to greater than 25,000 irrigated acres, excluding recycled water, shall be required to adopt and implement an AWMP and submit a plan to DWR.

Suppliers that provide less than 25,000 irrigated acres are not required to adopt and submit a plan unless sufficient funding has specifically been provided to that water supplier for these purposes.

Q2: What happens if an agricultural water supplier doesn't submit a plan?

A2: An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier adopts and implements an AWMP per Water Code §10852.

Q3: Why does DWR use the years 2012 and 2015 as two AWMP cycles since a cycle is 5 years?

A3: Agricultural Water Management Plans submittal years 2012 and 2015 are set by the SB X7-7 legislation. After 2015, plans are to be submitted every 5 years.

Q4: Do Bureau of Reclamation contractor suppliers submit AWMPs to DWR?

A4: Agricultural water suppliers that are required to submit water conservation plans also known as water management plan every five years to the Bureau of Reclamation pursuant to the CVPIA or the RRA, or both, may submit those plans to DWR to satisfy the requirements to adopt an AWMP as required by SB X7-7 if the following apply:

- The agricultural water supplier has adopted and submitted the plan to the Bureau of Reclamation within the previous four years (§10828(a)(1)).
- The Bureau of Reclamation has accepted the plan as adequate (§10828(a)(2)).

Q5: Do Bureau of Reclamation contractor suppliers comply with the state's agricultural water measurement regulation?

A5: All agricultural water suppliers as described in Water Measurement Regulation are subject to the Regulation. Federal water suppliers that currently comply with Reclamation's 2011 Criteria and measure water using devices that are maintained and calibrated to meet the federal standards would meet the accuracy standards of state regulation. Information submitted to DWR should include the following:

- If measurement is done at upstream of multiple customers farm-gates due to lack of legal access or water level or flow conditions, the supplier should provide needed information that includes a water supplier's legal counsel document for lack of legal access or documents for existence of fluctuating water flow conditions as described in section 597.3(b) of regulation.
- Water measurement conversion to volume.
- Performance information, including devices correctly installed, maintained, operated, inspected, and monitored.
- Description of best professional practices used; protocols used to convert non-volume readings; schedule, budget and finance plan for taking corrective actions.
- If existing devices are not in compliance with Reclamation, provide schedule, budget, and finance plan to replace the device with new devices by 2015.

Q6: Is there anything in the Water Conservation Act of 2009 which requires tiered water pricing for agricultural water suppliers?

A6: There is not any language in SB X7-7 regarding tiered pricing per se. However, see the following sections from the law regarding pricing structure:

**Water Code 10608.48 states:**

*(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:*

*(2) Adopt a pricing structure for water customers based at least in part on quantity delivered, and...*

*(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:...*

*(4) Implement an incentive pricing structure that promotes one or more of the following goals:*

*(A) More efficient water use at the farm level.*

*(B) Conjunctive use of groundwater.*

*(C) Appropriate increase of groundwater recharge.*

*(D) Reduction in problem drainage.*

*(E) Improved management of environmental resources.*

*(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions*

- Q7: Explain the condition of “sufficient funding provided to a water supplier” that would make the implementation of the requirements of SB X7-7 mandatory (e.g., adoption and submission to DWR of an AWMP).
- A7: For suppliers providing water to 10,000 or more but less than 25,000 irrigated acres, funding from the State or other entities may be made available for implementing a specific requirement (e.g., preparation of AWMPs). When the funding is part of a grant program requiring local match, then any supplier receiving such funds and agreeing to providing match would be required under the term of the grant agreement to implement that requirement. In the event where full funding has been provided to a supplier to implement a specific SB X7-7 requirement, then the supplier would be required to implement that requirement. Funding may be from state or other entities including local.
- Q8: When an agricultural water supplier recharges a groundwater basin for the purpose of providing irrigation water to customers who pump the water through private wells, how is the supplier’s total irrigated acreage calculated for the purpose determining SB X7-7 applicability?
- A8: When a supplier recharges a groundwater basin used by customers to pump water for irrigation, and there exists a customer – supplier relationship, then the total irrigated acres supplied from the pumped groundwater would count toward the supplier’s total irrigated acreage.

- Q9: SB X7-7 states that federal water suppliers' plans accepted by Reclamation can be submitted to satisfy the requirements of Section 10826 if they are submitted to Reclamation within the previous four years. Are federal plans accepted by Reclamation within the four years prior to the passage of SB X7-7 (November 10 2009) acceptable?
- A9: No, only federal plans accepted by Reclamation within the four years prior to the due date of the agricultural water management plans are acceptable. For the first round of AWMPs due December 31, 2012, federal plans accepted by Reclamation on or after December 31, 2008 are acceptable. For the second round of AWMPs due December 31, 2015, federal plans accepted by Reclamation on or after December 31, 2011 are acceptable. For the third round of AWMPs due December 31, 2020, federal plans accepted by Reclamation on or after December 31, 2016 are acceptable.
- Q10: We have 33,000 acres within the district, but we transfer 20,000 acre feet to a neighboring district. We only irrigate 9,000 acres within our district. Are we subject to SB X7-7 planning requirements?
- A10: It depends on the total irrigated acres served by the water supplier's water. If agricultural water supplier A routinely transfers a portion of its water to agricultural water supplier B (receiving water supplier), supplier A is a wholesale water supplier and its irrigated acreage is determined by the irrigated area of its direct customers and the irrigated area of the receiving water supplier customers served by the transfer.

## References

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Agricultural Water Management Council. Measurement Resources.

<http://www.agwatercouncil.org/Measurement/Measurement-Resources/menu-id-69.html>

Cal Poly San Luis Obispo. Irrigation Training and Research Center. Flow Measurement.

<http://www.itrc.org/projects/flowmeas.htm>

California Roundtable on Water and Food Supply. 2011. Agricultural Water Stewardship.

Recommendations to Optimize Outcomes for Specialty Crop Growers and the Public in California. A project of Ag Innovations Network, Sebastopol, CA.

[http://aginnovations.org/images/uploads/CRWFS\\_Water\\_Stewardship\\_Recs\\_electronic.pdf](http://aginnovations.org/images/uploads/CRWFS_Water_Stewardship_Recs_electronic.pdf)

Department of Water Resources California Irrigation Management Information System (CIMIS) Database

<http://www.cimis.water.ca.gov/cimis/info.jsp>

Department of Water Resources. 1975. Vegetative Water Use in California. Bulletin 113-3.

[http://www.water.ca.gov/pubs/use/land\\_and\\_water\\_use/vegetative\\_water\\_use\\_in\\_california\\_bulletin\\_113-3\\_1974/bulletin\\_113-3.pdf](http://www.water.ca.gov/pubs/use/land_and_water_use/vegetative_water_use_in_california_bulletin_113-3_1974/bulletin_113-3.pdf)

Department of Water Resources. 1986. Crop Water Use in California. Bulletin 113-4.

[http://www.water.ca.gov/pubs/use/land\\_and\\_water\\_use/crop\\_water\\_use\\_in\\_california\\_bulletin\\_113-4/bulletin\\_113-4.pdf](http://www.water.ca.gov/pubs/use/land_and_water_use/crop_water_use_in_california_bulletin_113-4/bulletin_113-4.pdf)

Department of Water Resources. 2003. California's Groundwater: Bulletin 118 update

<http://www.water.ca.gov/groundwater/bulletin118/update2003.cfm>

Department of Water Resources. 2008. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. Oct.

<http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf>

Department of Water Resources. 2009. California Water Plan Update 2009. Bulletin 160-09.

<http://www.waterplan.water.ca.gov/cwpu2009/index.cfm>

Department of Water Resources. 2011. Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan. Final, March 2011.

[http://www.water.ca.gov/urbanwatermanagement/docs/UWMP\\_Guidebook.pdf](http://www.water.ca.gov/urbanwatermanagement/docs/UWMP_Guidebook.pdf)

Memorandum of Understanding Regarding Efficient Water Management Practices by Agricultural Water Suppliers in California. Agricultural Water Suppliers Efficient Water Management Practices Act of 1990, AB 3616. January 1, 1999.

<http://www.agwatercouncil.org/images/stories/pdfs/awmcmou.pdf>

Roos, M. and M.L. Anderson. 2006. Monitoring Monthly Hydrologic Data to Detect Climate Change in California. Presented at the Third Annual Climate Change Research Conference in Sacramento. Sept 2006. Available from:

[http://www.climatechange.ca.gov/events/2006\\_conference/poster\\_session/Roos+Anderson\\_Hydrolic\\_monitoring.pdf](http://www.climatechange.ca.gov/events/2006_conference/poster_session/Roos+Anderson_Hydrolic_monitoring.pdf)

USBR Water Management Plan Guidebook. 2008.

[http://www.usbr.gov/mp/watershare/documents/Water\\_mgmt/index.html](http://www.usbr.gov/mp/watershare/documents/Water_mgmt/index.html)

USBR Water Measurement Manuel. 2001.

[http://www.usbr.gov/pmts/hydraulics\\_lab/pubs/wmm/](http://www.usbr.gov/pmts/hydraulics_lab/pubs/wmm/)

# **Appendix A - Recommended AWMP Template**

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## **Agricultural Water Management Plan**

Prepared Pursuant to [*select* Water Code Section 10826, or AWMC  
MOU, or CVPIA/RAA]

**[Insert Agricultural Water Supplier's Name]**  
[Insert Representative Name]  
[Insert Complete Address]

Adopted on [Insert Date of Plan Adoption]

# Section I: Plan Preparation and Adoption

## A. Description of Previous Water Management Activities

Insert description.

## B. Coordination Activities

### 1. Notification of AWMP Preparation

A copy of the notification may be attached and/or Recommended Table 1 filled in.

### 2. Public Participation

Recommended Table 1 may be filled in and/or a description provided.

## C. Plan Adoption and Submittal

### 1. Plan Adoption

A copy of the water supplier signed Resolution of Plan Adoption may be attached

### 2. Plan Submittal

Recommended Table 1 may be filled in and/or a description provided

### 3. Plan Availability

Recommended Table 1 may be filled in and/or a description provided

<b>Recommended Table 1: Summary of Coordination, Adoption, and Submittal Activities</b>						
<b>Potential Interested Parties</b> <i>[Provide names(s)]</i>	<b>Notified of Plan Preparation</b>	<b>Requested Copy of Draft</b> <i>(Optional)</i>	<b>Commented on Draft/Action Taken by Supplier</b> <i>(Optional)</i>	<b>Notified of Public Meetings</b>	<b>Attended Public Meetings</b> <i>(Optional)</i>	<b>Copy of Adopted Plan/ Amendment Sent</b>
<b>Local City(s)</b>	[Insert Date]					[Insert Date]
<b>Local County(s)</b>	[Insert Date]					[Insert Date]
<b>Groundwater Management Entity</b>						[Insert Date]
<b>Urban Water Supplier(s)</b>						[Insert Date]
<b>City or County Library</b>						[Insert Date]
<b>Local Agency Formation Commission</b>						[Insert Date]
<b>DWR</b>						[Insert Date]
<b>Local Newspaper/ Equivalent Process</b> <i>[Identify which]</i>				[Insert Dates]		
<b>Other Local government agency</b>						
<b>Other Special districts</b>						
<b>Regional agency</b>						
<b>Environmental citizen group</b>						
<b>Land Use Agencies</b>						
<b>Business group</b>						
<b>Social citizen group</b>						
<b>Other State government agency</b>						
<b>Federal government agency</b>						
<b>Other (identify)</b>						
<b>Website</b>						[Insert Date Posted or Sent to DWR for Posting]
Note: Additional rows/columns can be added as applicable.						

## D. Plan Implementation

### 1. Description of Schedule of Implementation

Insert description.
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## Section II: Description of the Agricultural Water Supplier and Service Area

### A. Physical Characteristics

#### 1. Size of the service area

Insert description. Recommended Tables 2 and 3 or similar tables can also be used.

<b>Recommended Table 2. Water Supplier History and Size</b>	
<b>Date of Formation</b>	<b>Date:</b>
<b>Source of Water</b>	<b>Check applicable sources</b>
Local Surface Water	
Local Groundwater	
Wholesaler	
USBR	
SWP	
<b>Service Area Gross Acreage</b>	_____ acres
<b>Service Area Irrigated Acreage</b>	_____ irrigated acres
Note: Additional rows/columns can be added as applicable.	

<b>Recommended Table 3. Expected Changes to Service Area</b>		
Change to Service Area [Delete non-applicable row(s)]	Estimate of Magnitude	Effect on the Water Supplier
<b>Reduced Service Area Size</b>	[Estimate reduced area]	
<b>Increased Service Area Size</b>	[Estimate increased area]	
<b>New Governmental Entity</b>	[Describe effect on service area]	
<b>Other</b> [Define/Identify]		
Note: Additional rows/columns can be added as applicable.		

#### 2. Location of the service area and water management facilities

Insert description (text or maps). Recommended Tables 4 to 6 or similar tables can also be used.

<b>Recommended Table 4. Water Conveyance and Delivery System</b>	
<b>System Used</b>	<b>Number of Miles</b>
<b>Unlined Canal</b>	
<b>Lined Canal</b>	
<b>Pipelines</b>	
<b>Drains</b>	
Note: Additional rows/columns can be added as applicable.	

<b>Recommended Table 5. Water Supplier Reservoirs</b>	
<b>Number</b>	
<b>Total Capacity</b>	
Note: Additional rows/columns can be added as applicable.	

<b>Recommended Table 6. Tailwater/Spill Recovery System</b>	
<b>System</b>	<b>Yes/No</b>
<b>District Operated Tailwater/Spill Recovery</b>	
<b>Grower Operated Tailwater/Spill Recovery</b>	
Note: Additional rows/columns can be added as applicable.	

### 3. Terrain and soils

Insert description (text or maps). Recommended Table 7 or similar table(s) can be used.

<b>Recommended Table 7. Landscape Characteristics</b>			
<b>Topography Characteristic</b>	<b>% of the District</b>	<b>Effect on Water Operations and Drainage</b>	
<b>Soil Characteristic/ Classification</b>	<b>% of the District</b>	<b>Percolation Rate (inches/hour)</b>	<b>Effect on Water Operations and Drainage</b>

Note: Additional rows/columns can be added as applicable.

#### 4. Climate

Insert description. Recommended Tables 8 and 9 or similar tables can be used.

<b>Recommended Table 8. Summary Climate Characteristics</b>	
<b>Climate Characteristic</b>	<b>Value</b>
<b>Average Annual Precipitation (inches)</b>	
<b>Annual Minimum Precipitation (inches)</b>	
<b>Annual Maximum Precipitation (inches)</b>	
<b>Average Annual Minimum Temperature (°F)</b>	
<b>Average Annual Maximum Temperature (°F)</b>	

Note: Additional rows/columns can be added as applicable.

<b>Recommended Table 9. Detailed Climate Characteristics*</b>				
<b>Month/Time</b>	<b>Average Precipitation, Inches</b>	<b>Average Reference Evapotranspiration (E<sub>t0</sub>), Inches</b>	<b>Average Minimum Temperature, °F</b>	<b>Average Maximum Temperature, °F</b>
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				
Wet Season**				
Dry Season**				
Extreme Conditions (if applicable) [Insert type, e.g., 100-year event]				
Other [Identify]				
Notes: *Please provide as much information as is available. If data is not available, delete column/row or ignore cell(s). Alternatively, additional rows/columns can be added as applicable. **Wet season is typically October through April or November through May, depending upon location. Identify months used in the table Notes.				

**B. Operational Characteristics**

1. Operating rules and regulations

Insert description. A copy of your Operating Rules and Regulations may be attached. Recommended Tables 10 through 12 or similar tables can be used.

<b>Recommended Table 10. Supplier Delivery System</b>		
<b>Type</b>	<b>Check if Used</b>	<b>Percent of System Supplied</b>
<b>On Demand</b>		
<b>Modified Demand</b>		
<b>Rotation</b>		
<b>Other</b>		
Note: Additional rows/columns can be added as applicable.		

<b>Recommended Table 11. Water Allocation Policy</b>					
	<i>(Check if applicable)</i>			<b>Allocation</b>	
<b>Basis of Water Allocation</b>	<b>Flow</b>	<b>Volume</b>	<b>Seasonal Allocations</b>	<b>Normal Year</b>	<b>Percent of Water Deliveries (%)</b>
<b>Area within the service area</b>					
<b>Amount of land owned</b>					
<b>Riparian rights</b>					
<b>Other</b>					
Note: Additional rows/columns can be added as applicable.					

<b>Recommended Table 12. Actual Lead Times</b>	
<b>Operations</b>	<b>Hours/Days</b>
<b>Water orders</b>	
<b>Water shut-off</b>	
Note: Additional rows/columns can be added as applicable.	

## 2. Water delivery measurements or calculations

Insert description. Recommended Table 13 or similar table can be used. CCR 597 compliance documentation can be attached in Section VIII.

<b>Recommended Table 13. Water Delivery Measurements</b>				
<b>Measurement Device</b>	<b>Frequency of Measurement (Days)</b>	<b>Frequency of Calibration (Months)</b>	<b>Frequency of Maintenance (Months)</b>	<b>Estimated Level of Accuracy (%)</b>
<b>Orifices (meter gates)</b>				
<b>Propeller Meters</b>				
<b>Weirs</b>				
<b>Flumes</b>				
<b>Verturi Meters</b>				
<b>Pump, Run Time</b>				
<b>Pump, KWH</b>				
<b>Other</b>				
Note: Additional rows/columns can be added as applicable.				

## 3. Water rate schedules and billing

Insert description. Recommended Tables 14 through 16 or similar tables can be used. Sections VII and VIII can also be referenced.

<b>Recommended Table 14. Water Rate Basis</b>			
<b>Water Charge Basis</b>	<b>Check if Used</b>	<b>Percent of Water Deliveries (%)</b>	<b>Description</b>
<b>Volume of Water Delivered</b>			
<b>Rate and Duration of Water Delivered</b>			
<b>Acre</b>			
<b>Crop</b>			
<b>Land Assessment</b>			
<b>Other</b>			
Note: Additional rows/columns can be added as applicable.			

<b>Recommended Table 15. Rate Structure</b>		
<b>Type of Billing</b>	<b>Check if Used</b>	<b>Description</b>
<b>Declining</b>		
<b>Uniform</b>		
<b>Increasing Block Rate</b>		
<b>Other</b>		
Note: Additional rows/columns can be added as applicable.		

<b>Recommended Table 16. Frequency of Billing</b>	
<b>Frequency</b>	<b>Check if Used</b>
<b>Weekly</b>	
<b>Biweekly</b>	
<b>Monthly</b>	
<b>Bimonthly</b>	
<b>Semiannually</b>	
<b>Annually</b>	
Note: Additional rows/columns can be added as applicable.	

#### 4. Water shortage allocation policies

Insert description. You may attach a copy of your Water Shortage Allocation Policy and/or complete Recommended Tables 17 and 18 or similar tables.

<b>Recommended Table 17. Decreased Water Supplies Allocations</b>	
<b>Allocation Method</b>	<b>Check if used</b>
<b>By crop</b>	
<b>First come first served</b>	
<b>Area in district</b>	
<b>Other</b>	
<b>No specific policy</b>	
Note: Additional rows/columns can be added as applicable.	

<b>Recommended Table 18. Enforcement Methods of Allocation Policies</b>	
<b>Enforcement Method</b>	<b>Check if used</b>
<b>Fines</b>	
<b>Water Shut-off</b>	
<b>Other</b>	
<b>No specific policy</b>	
Note: Additional rows/columns can be added as applicable.	

### **C. Basis for Reporting Water Quantities**

Describe the basis for determining water use and/or complete Recommended Table 19 or similar table, if applicable.

<b>Recommended Table 19. Representative Year</b>	
	<b>Description</b>
<b>Representative year(s) based upon</b>	[include year(s)]
<b>First month of representative year</b>	
<b>Last month of representative year</b>	
Note: Additional rows/columns can be added as applicable.	

## Section III: Description of Quantity of Water Uses of the Agricultural Water Supplier

### A. Agriculture Water Use

Insert description of quantity. You may complete Recommended Tables 20 and 23 or similar tables, if applicable.

Recommended Table 20. Annual Agricultural Water Use (AF)						
Source	Representative Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Agricultural Water Supplier Delivered</b>						
Surface Water						
Groundwater						
Other (define)						
<b>Other Water Supplies Used</b>						
Surface Water						
Groundwater						
Other (define)						

Notes: Insert data if available. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.

Recommended Table 21. Agricultural Crop Data For [Insert year*]								
Crop	Total Acreage	Irrigation Method	Planting Month	Harvest Month	ET crop (AF/Ac)	Cultural Practices (AF/Ac)	Leaching Requirement (AF/Ac)	Total Crop Water Needs (AF)

<b>TOTAL</b>								
<b>Notes:</b> *Complete a separated table for the Representative Year or each year in the Planning Cycle where data is available. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.								

<b>Recommended Table 22. Irrigated Acres</b>						
	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Total Irrigated Acres</b>						
<b>Notes:</b> Insert data if available. If data is not available, columns or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.						

<b>Recommended Table 23. Multiple Crop Information</b>						
Cropping System	Representative Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Single-Cropped Acres</b>						
<b>Inter-cropping</b>						
<b>Double Cropping</b>						
<b>Note:</b> Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.						

## B. Environmental Water Use

Insert description of quantity. You may complete Recommended Table 24 or similar table
--

**Recommended Table 24. Environmental Water Uses (AF)**

Environmental Resources	Representative Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>From Supplier</b>						
Vernal pools						
Streams						
Lakes or reservoirs						
Riparian Vegetation						
Other [Identify]						
<b>TOTAL</b>						
<b>All Sources</b>						
Vernal pools						
Streams						
Lakes or reservoirs						
Riparian Vegetation						
Other [Identify]						
<b>TOTAL</b>						

Notes:  
 Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

**C. Recreational Water Use**

Insert description of quantity. You may complete Recommended Table 25 or similar table

Recommended Table 25. Recreational Water Uses (AF)						
Recreational Facility	Representative Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>TOTAL</b>						

Notes:  
 Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

**D. Municipal and Industrial Use**

Insert description of quantity. You may complete Recommended Table 26 or similar table

Recommended Table 26. Municipal/Industrial Water Uses (AF)						
Municipal/ Industrial Entity	Representative Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Municipal Entity</b>						
<b>Industrial Entity</b>						
<b>TOTAL</b>						

Notes:  
 Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

### E. Groundwater Recharge Use

Insert description of quantity. You may complete Recommended Table 27 or similar table

<b>Recommended Table 27. Groundwater Recharge Water Uses (AF)</b>						
Location/ Groundwater Basin	Method of Recharge	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Commitments/Dedicated</b>						
<b>Voluntary/Oppportunistic</b>						
<b>TOTAL</b>						
Notes: Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.						

### F. Transfer and Exchange Use

Insert description of quantity. You may complete Recommended Table 28 or similar table

<b>Recommended Table 28. Transfers and Exchanges Water Uses</b>			
<b>From What Agency</b>	<b>To What Agency</b>	<b>Type (Ag to M&amp;I, M&amp;I to Ag, or Ag to Ag)</b>	<b>Volume (AF)</b>
<b>Representative Year</b>			
<b>Planning Cycle Year 1</b>			
<b>Planning Cycle Year 2</b>			
<b>Planning Cycle Year 3</b>			
<b>Planning Cycle Year 4</b>			
<b>Planning Cycle Year 5</b>			
<b>Notes:</b> Insert data if available. A minimum of one year should be reported. If data is not available, rows can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.			

**G. Other Water Use**

Insert description of quantity. You may complete Recommended Table 29 or similar table

Recommended Table 29. Other Water Uses (AF)						
Water Use	Representative Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
[Identify Use]						
[Identify Use]						
[Identify Use]						
[Identify Use]						
<b>TOTAL</b>						
Notes: Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.						

**H. Optional – Projected Water Use**

You may insert a description and/or tables of projected water uses if available

**Section IV: Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier**

**A. Water Supply Quantity**

1. Surface Water Supply

Insert description of quantity. You may complete Recommended Tables 30 and 31 or similar tables and provide calculations.

Recommended Table 30. Surface Water Supplies (AF)								
Source	Diversion Restriction	Rep. Year	Planning Cycle					Anticipated Changes
			1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]	
Pre-1914 water rights								
CVP class I water contract								

<b>SWP water contract</b>								
<b>Other imported water surface water</b>								
<b>Local surface water [Identify]</b>								
<b>Upslope drain water</b>								
<b>Transfers /Exchanges</b>								
<b>TOTAL</b>								

Notes:  
 Insert data if available. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.

<b>Recommended Table 31. Restrictions on Water Sources</b>			
<b>Source</b>	<b>Restrictions*</b>	<b>Name of Agency Imposing Restrictions</b>	<b>Operational Constraints</b>

Notes:  
 \*Examples of possible restrictions are amount of water supplied by DWR, USBR; environmental laws.

## 2. Groundwater Supply

Insert description of quantity. You may complete Recommended Tables 31 through 34 or similar tables and provide calculations.

<b>Recommended Table 32. Groundwater Basins</b>			
<b>Basin Name</b>	<b>Size (Sq. Mi.)</b>	<b>Usable Capacity (AF)</b>	<b>Safe Yield (AF/Yr)</b>

Note: Additional rows/columns can be added as applicable.

Recommended Table 33. Groundwater Management Plan	
Written By	
Year	
Is Appendix Attached?	
Note: Additional rows/columns can be added as applicable.	

Recommended Table 34. Groundwater Supplies (AF)								
Groundwater Basin	Diversion Restriction	Rep. Year	Planning Cycle					Anticipated Changes
			1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]	
Water Supplier Direct Pumping								
Private Pumping								
Transfers /Exchanges								
<b>TOTAL</b>								
Notes: Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.								

### 3. Other Water Supplies

Identify other water supply(s). Insert description of quantity. You may add to Recommended Tables 30 and Table 31 or provide a similar tables and calculations.

### 4. Drainage From the Water Supplier's Surface Area

Insert description of quantity. You may fill in Recommended Table 31 and 35 or similar tables and provide calculations.

Recommended Table 35. Drainage Discharge (AF)								
Surface/ Subsurface Drainage Path	Rep. Year	Planning Cycle					End Use	Inside/ Outside Service Area
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]		


Note:  
 Insert data if available. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.

## A. Water Supply Quality

### 1. Surface Water Supply

Insert description of quality. You may fill in Recommended Table 36 or similar table. Additional tables may be used for multiple years and multiple sources.

Recommended Table 36. [Insert Source*] Water Supply Quality**							
Parameter	Units	Rep. Year	Planning Cycle				
			1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
TDS							
Se							
B							
Mo							
As							
Na							
Cl							
Pesticide							
Herbicide							
Fertilizer(NO <sub>3</sub> )							
Other [Identify]							
Other [Identify]							

Notes:  
 Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

\* Identify supply source, for example, surface water, groundwater, or other water. If 'Other' water source is used, specify what the 'Other' water source is.

\*\* Report average value and the range of values in parenthesis. For example, 10 (2 – 14), where 10 units is the yearly average and measurements ranged from 2 to 14 units. Units are specified in the 'Units' column.

### 2. Groundwater Supply

Insert description of quality. You may prepare a table based on Recommended Table 36 or similar table.

### 3. Other Water Supplies

Identify other water supply(ies). Insert description of quality. You may prepare a table based on Recommended Table 36 or similar table.

### 4. Drainage From the Water Supplier's Surface Area

Insert description of quality. You may fill in Recommended Table 37 or similar table. Additional tables may be used for multiple years.

<b>Recommended Table 37. Drainage Reuse Effects</b>						
<b>Analyte</b>	<b>Detected (Check)</b>	<b>Drainage Reuse Limitations (<i>Check</i>)</b>				
		<b>Increased Leaching</b>	<b>Blending Supplies</b>	<b>Restricted Area of Use</b>	<b>Restricted Crops</b>	<b>Other</b>
<b>TDS</b>						
<b>Se</b>						
<b>B</b>						
<b>Mo</b>						
<b>As</b>						
<b>Na</b>						
<b>Cl</b>						
<b>Pesticide</b>						
<b>Herbicide</b>						
<b>Fertilizer(NO<sub>3</sub>)</b>						
<b>Other</b>						

Note:  
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

## C. Water Quality Monitoring Practices

### 1. Source Water

Insert description. You may fill in Recommended Table 38 or similar table. Additional tables may be used for multiple years.



## Section V: Water Accounting and Water Supply Reliability

### A. Quantifying the Water Supplier's Water Supplies

#### 1. Agricultural Water Supplier Water Quantities:

Insert water supply quantification. You may fill in Recommended Tables 40 and 41 or similar tables.

<b>Recommended Table 40. Surface and Other Water Supplies For [Insert year*] (AF)</b>												
Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Dec	Total
<b>CVP Class 1 Contracts</b>												
<b>Pre-1914 Rights</b>												
<b>SWP</b>												
<b>Local Surface Water</b>												
<b>Upslope Drain Water</b>												
<b>Transfers &amp; Exchanges</b>												
<b>Recycled Water</b>												
<b>Other [Identify]</b>												
<b>Total</b>												

Notes:  
 \*Identify whether this data is for the Representative Year or 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup> Plan Cycle Year. Prepare one table, as applicable, for each year with data. Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Recommended Table 41. Groundwater Supplies Summary For [Insert Year*] (AF)							
Month	Pumped by the Water Supplier			Pumped within Service Area by Customers			TOTAL
	Basin 1	Basin 2	Basin 3	Basin 1	Basin 2	Basin 3	
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
<b>TOTAL</b>							

Notes:  
 \*Identify whether this data is for the Representative Year or 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup> Plan Cycle Year. Prepare one table, as applicable, for each year with data. Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

2. Other Water Sources Quantities:

Insert water supply quantification. You may fill in Recommended Tables 41 and 42 or similar tables.

Recommended Table 42. Effective Precipitation Summary (AF)							
Month	Representative Year	Planning Cycle					Average
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]	
January							
February							
March							
April							
May							

<b>June</b>							
<b>July</b>							
<b>August</b>							
<b>September</b>							
<b>October</b>							
<b>November</b>							
<b>December</b>							
<b>TOTAL</b>							

Notes:  
 Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

### B. Quantification of Water Uses

Insert tabulation of water uses. You may fill in Recommended Tables 43 through 46 or similar tables.

<b>Recommended Table 43. Applied Water (AF)</b>						
	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Applied Water*</b> (from Table 20)						

Note:  
 \* Water delivered to agricultural customers from Section III.

<b>Recommended Table 44. Quantify Water Use (AF)</b>						
Water Use	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
<b>Crop Water Use</b> (from Table 21)						
1 Crop Evapotranspiration						
2 Leaching						
3 Cultural practices						
<b>Conveyance &amp; Storage System</b>						

4	Conveyance seepage						
5	Conveyance evaporation						
6	Conveyance operational spills						
7	Reservoir evaporation						
8	Reservoir seepage						
<b>Environmental Use (consumptive)</b>							
9	Environmental use – wetlands (from Table 24)						
10	Environmental use – Other (from Table 24)						
11	Riparian vegetation (from Table 24)						
12	Recreational use (from Table 25)						
<b>Municipal and Industrial</b>							
13	Municipal (from Table 26)						
14	Industrial (from Table 26)						
<b>Outside the District</b>							
15	Transfers or Exchanges out of the service area (from Table 28)						
<b>Conjunctive Use</b>							
16	Groundwater recharge (from Table 27)						
<b>Other (from Table 29)</b>							
<b>Subtotal</b>							
<p>Notes:  Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.</p>							

<b>Recommended Table 45. Quantify Water Leaving the District (AF)</b>						
	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
1	Surface drain water leaving the service area					
2	Subsurface drain water leaving the service area					
<b>Subtotal</b>						
Notes: Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.						

<b>Recommended Table 46. Irrecoverable Water Losses (Optional)* (AF)</b>						
	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
	Flows to saline sink					
	Flows to perched water table					
<b>Subtotal</b>						
Notes: *Insert data if available and describe how it was calculated. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.						

**C. Overall Water Budget**

Quantify overall water budget. You may fill in Recommended Tables 47 and 48 or similar tables.

**Recommended Table 47. Quantify Water Supplies (AF)**

Water Supplies	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
1 Surface Water* (summary total from Table 40)						
2 Groundwater (summary total from Table 41)						
3 Annual Effective Precipitation (summary total from Table 42)						
4 Water purchases						
<b>Subtotal</b>						

**Notes:**

Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

\*Subtract water purchases if included in totals; water purchases will be included on line 4.

**Recommended Table 48. Budget Summary (AF)**

Water Accounting	Rep. Year	Planning Cycle				
		1 <sup>st</sup> Year [Insert Year]	2 <sup>nd</sup> Year [Insert Year]	3 <sup>rd</sup> Year [Insert Year]	4 <sup>th</sup> Year [Insert Year]	5 <sup>th</sup> Year [Insert Year]
1 Subtotal of Water Supplies (Table 47)						
2 Subtotal of Water Uses (Table 44)						
3 Drain Water Leaving Service Area (Table 45)						
Excess Deep Percolation*						

**Notes:**

Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

\*Calculated from lines 2 and 3 subtracted from line 1

#### D. Water Supply Reliability

Insert description.

#### E. Optional – Future Water Supply

You may insert a discussion of future water supply issues.

### Section VI: Climate Change

Insert analysis on the effect of climate change on future water supplies.

### Section VII: Water Use Efficiency Information

#### A. EWMP Implementation and Reporting

Insert report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report , and an estimate of the water use efficiency improvements estimated to occur five to 10 years in the future. Recommended Tables 49 may be used. Recommended Table 50 should be included if grant funding is pursued.

<b>Recommended Table 49. Report of EWMPs</b>				
<b>EWMP No.*</b>	<b>Description of EWMP Implemented</b>	<b>Estimate of Water Use Efficiency Improvements That Occurred Since Last Report</b>	<b>EWMPs Planned</b>	<b>Estimated Water Use Efficiency Improvements 5-10 years in future</b>
<b>Critical EWMPs</b>				
1				
2				
<b>Conditionally Required EWMPs (locally cost-effective and technically feasible EWMPs)</b>				
1				
2				
3				
4				
5				
6				
7				

8				
9				
10				
11				
12				
13				
14				
<b>Other Optional EWMPs (as applicable)</b>				
1				
2				
Notes: *EWMP numbers correspond to SB X7-7 §10608.48(c)				

<b>Recommended Table 50. Schedule to Implement EWMPs</b>				
<b>EWMP</b>	<b>Implementation Schedule</b>	<b>Staffing Requirements</b>	<b>Budget Allotment</b>	<b>AWMC MOU Demand Measures</b>
<b>Critical</b>				
1 – Water Measurement				C-1
2 - Volume-Based Pricing				
<b>Conditional</b>				
1 – Alternate Land Use				B-1
2 – Recycled Water Use				B-2
3 – On-Farm Irrigation Capital Improvements				B-3
4 – Incentive Pricing Structure				C-2
5 – Infrastructure Improvements				B-5
6 – Order/Delivery Flexibility				B-6
7 – Supplier Spill and Tailwater Systems				B-7
8 – Conjunctive Use				B-8

9 – Automated Canal Controls				B-9
10 – Customer Pump Test/Eval.				
11 – Water Conservation Coordinator				A-2
12 – Water Management Services to Customers				A-3
13 – Identify Institutional Changes				A-5
14 – Supplier Pump Improved Efficiency				A-6
<b>Other EWMPs:</b>				
AWMC MOU A-4: Improve communication and cooperation among water suppliers, users, and other agencies.				
AWMC MOU B-4: Facilitate voluntary water transfers.				
<b>Grand Total all EWMPs</b>				
Note: There is no equivalent AWMP Critical EWMP #2 or Conditional EWMP #10				

## B. Documentation For Non-Implemented EWMPs

Submit information documenting non-technically feasible and/or not locally cost-effective EWMPs. Recommended Table 51 can be used to document non-implemented EWMPs.

<b>Recommended Table 51. Non-Implemented EWMP Documentation</b>				
<b>EWMP #</b>	<b>Description</b>	<i>(check one or both)</i>		<b>Justification/Documentation*</b>
		<b>Technically Infeasible</b>	<b>Not Locally Cost-Effective</b>	

Notes: *Justification/Documentation can include summary cost-benefit analysis or engineering determination with reference to the specific study/agency/engineer responsible for making that determination.				

**Section VIII: Supporting Documentation**

**Agricultural Water Measurement Regulation Documentation (as applicable)**

**A. Legal Certification and Apportionment Required for Water Measurement**

Insert Legal Certification and apportionment methodology, if applicable.

**B. Engineer Certification and Apportionment Required for Water Measurement**

Insert Engineer Certification and apportionment methodology, if applicable.

**C. Description of Water Measurement Best Professional Practices**

Insert description of Water Measurement Best Professional Practices.

**D. Documentation of Water Measurement Conversion to Volume**

Insert documentation of flow, velocity, or water level conversions to water volume, if applicable.

**E. Device Corrective Action Plan Required for Water Measurement**

Insert device repair plan, schedule, budget, and finance plan, if applicable.

**F. Farm-gate Measurement and Device Accuracy Compliance (Optional)**

Insert documentation, as applicable.

**Other Documents (as applicable)**

Attach other supporting documentation, as applicable.



## Footnotes

RECOMMENDED TABLE NO.	EXPLANATION
1	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 1 except that required items are highlighted, additional information is requested for some items, and additional optional items added.
2	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 2.
3	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 8 except that a column had been added to allow for reporting of the expected change in size/magnitude.
4	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 3.
5	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 4.
6	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 5.
7	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 9 and 10 except that terrain/ topography effects on drainage conditions are also recommended
8	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 11 except that annual minimum and maximum monthly precipitation reporting is also requested.
9	This table has no comparable AWMC MOU Agricultural Water Management Plan Worksheets table.
10	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 6.
11	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 12.
12	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 13.
13	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 14.
14	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 15 except that a description of the water charge basis is requested and that charges based on water quantity be identified as volume- or rate- based.
15	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 16.
16	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 17.
17	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 18.
18	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 19.
19	This table is essentially the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 24 except actual year(s) used has to be reported.
20	This table replaces AWMC MOU Agricultural Water Management Plan Worksheets Table 24 with additional columns for data from multiple years.
21	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 25.
22	This table is essentially the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 26 with additional columns for data from multiple years.
23	This table is essentially the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 27 with additional columns for data from multiple years.
24	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 28 except that the supplier volume of water used is separated from total uses.
25	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 29.
26	This table has no corresponding AWMC MOU Agricultural Water Management Plan Worksheets table.
27	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 30 except that the location of recharge is identified and the volume of water used that is dedicated for

	groundwater recharge is separated from voluntary/ opportunistic groundwater recharge
<b>28</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 31.
<b>29</b>	This table has no corresponding AWMC MOU Agricultural Water Management Plan Worksheets table.
<b>30</b>	This table is essentially the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 20 except that local groundwater supply information is added.
<b>31</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 7 except that a column has been added to identify the water source. Additional rows/columns can be added as applicable.
<b>32</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 21.
<b>33</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 22.
<b>34</b>	This table has no corresponding AWMC MOU Agricultural Water Management Plan Worksheets table.
<b>35</b>	This table is similar to the AWMC MOU Agricultural Water Management Plan Worksheets Table 32.
<b>36</b>	This table is similar to the AWMC MOU Agricultural Water Management Plan Worksheets Table 34 except this is for source water quality.
<b>37</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 34.
<b>38</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 23 except that a column has been added to identify the water source.
<b>39</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 33.
<b>40</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 35.
<b>41</b>	This table is the same as AWMC MOU Agricultural Water Management Plan Worksheets Table 36.
<b>42</b>	This table has no corresponding AWMC MOU Agricultural Water Management Plan Worksheets table.
<b>43</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 37 except that columns have been added for additional years.
<b>44</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 38 except that columns have been added for additional years.
<b>45</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 39 except that columns have been added for additional years.
<b>46</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 40 except that columns have been added for additional years.
<b>47</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 41 except that columns have been added for additional years.
<b>48</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 42 except that columns have been added for additional years.
<b>49</b>	This table is not related to any AWMC MOU Agricultural Water Management Plan Worksheets Table.
<b>50</b>	This table is similar to AWMC MOU Agricultural Water Management Plan Worksheets Table 44 but re-orders EWMPs to correspond to SBX7-7 EWMPs and provides the corresponding SBX7-7 EWMP number.
<b>51</b>	There is no comparable AWMC MOU Agricultural Water Management Plan Worksheets table.