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

Submittal of 2012 Agricultural Water Management Plans and Implementation of Efficient Water Management Practices Review Report

A report to the Legislature pursuant to Sections 10845(a) & (b) and 10608.48(g) of the California Water Code

April 2016

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Governor
State of California

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Secretary for Natural Resources
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List of Acronyms

AB	Assembly Bill
AF	acre-feet
Ag Council	Agricultural Water Management Council
APA	Administrative Procedures Act
ASC	Agricultural Stakeholder Committee
AWMP	Agricultural Water Management Plan(s)
BMP	best management practice(s)
CIMIS	California Irrigation Management Information System
Criteria	United States Bureau of Reclamation Mid-Pacific Region, 2011 Standard Criteria
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act of 1992
DWR	Department of Water Resources
EWMP	Efficient Water Management Practice(s)
Guidebook	A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan
ID	Irrigation District
M&I	municipal and industrial
MOU	Memorandum of Understanding
MWC	Mutual Water Company
QSA	Quantification Settlement Agreement
Reclamation	United States Bureau of Reclamation
Regulation	Agricultural Water Measurement Regulation, July 11, 2012
RRA	Reclamation Reform Act of 1982
SB X7-7	Senate Bill X7-7, the Water Conservation Act of 2009
SCADA	Supervisory Control and Data Acquisition
SWP	State Water Project
USBR	United States Bureau of Reclamation
WC	Water Code
WD	Water District

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Executive Summary

Senate Bill X7-7, the Water Conservation Act of 2009 (SB X7-7), requires agricultural water suppliers who provide water to more than 25,000 irrigated acres (excluding acreage irrigated by recycled water) to adopt and submit Agricultural Water Management Plans (AWMP) to the Department of Water Resources (DWR) and to implement Efficient Water Management Practices (EWMPs), including the measurement and volumetric pricing of water deliveries. Furthermore, SB X7-7 directed DWR to prepare and submit to the Legislature two reports summarizing:

- The status of adopted AWMPs
- Outstanding elements of adopted plans
- An evaluation of the effectiveness of implemented AWMPs in promoting efficient agricultural water management practices as well as an assessment of the manner in which the implementation of an EWMP has affected and will affect agricultural operations, including water use efficiency improvements, if any
- An estimation of water use efficiency improvements, if any
- Recommendations relating to proposed changes to the AWMP reporting requirements and EWMPs

This legislative report combines the two required reports into a single report and documents the status of plan submittals and the implementation of associated EWMPs. This report, furthermore, focuses on the EWMPs and AWMP content as described in SB X7-7 and provides a summary of the EWMPs and outstanding AWMP content submitted in those plans. The United States Bureau of Reclamation (Reclamation) plans include best management practices (BMPs) and once they are accepted by Reclamation, DWR will accept them also. However, Reclamation's BMPs are not summarized in this report but they are accounted for in the summary of the EWMPs in Section 6 when they are applicable to the corresponding EWMP. A table comparing the SB X7-7 EWMPs and Reclamation BMPs can be found in Appendix B.

Further information and legislative reports on other SB X7-7 requirements can be found at: http://www.water.ca.gov/wateruseefficiency/sb7/.

Status of Agricultural Water Management Plans Adopted Pursuant to Senate Bill X7-7

As of August 2015, DWR received AWMPs from 64 agricultural water suppliers. These plans represent approximately 3.6 million acres or roughly 44 percent of the 8.13 million acres of irrigated land as estimated in the California Water Plan Update 2013.

Status of Plans Submitted

- A total of 54 water suppliers were identified as, "Required to Submit Plans."
  Of these:
    - 44 water suppliers submitted plans, representing 81% compliance.
    - 10 water suppliers did not submit plans as required.
        - 2 of these water suppliers have submitted 2015 AWMPs to DWR
        - 2 of these water suppliers have notified DWR of intent to submit
        - 6 water suppliers have not responded to date
- 20 water suppliers have voluntarily submitted plans (This includes suppliers that provided water to less than 25,000 irrigated acres, were a QSA* signatory, or wholesale supplier.)
- DWR received 45 AWMPs representing 64 water suppliers – 39 plans were required and 6 were voluntary. An additional 14 suppliers have submitted their voluntary plans as part of the two regional plans received.
- DWR received two regional water management plans:
    - 1 Sacramento River Settlement Contractors Regional Plan (10 water suppliers)
    - 1 Feather River Regional Plan (9 water suppliers)

*QSA =Quantification Settlement Agreement

All of the agricultural water suppliers that submitted adopted plans have met the general requirements of the Water Code and this status is summarized in Sections 4 and 5.

This information is also summarized in greater detail in Section 4, Tables 1 and 2. A color-coded map illustrating the location of the agricultural water suppliers required to submit plans as well as the status of those submitted plans can be found in Appendix C of this report, and on DWR's website at: http://www.dwr.water.ca.gov/wateruseefficiency/sb7/.

Examples of Outstanding Plan Contents

In the AWMP under SB X7-7, agricultural water suppliers are required to describe certain elements or content, such as service area, the quantity and quality of water resources, an analysis on the effect of climate change, and previous water management activities' water use information regarding EWMPs[1]. Even though the legislation does not provide details of this content, some agricultural water districts provided outstanding examples, as briefly described in Section 4.

Implementation and Effectiveness of SB X7-7 Efficient Water Management Practices

The following two tables summarize the implementation of EWMPs as reported in the submitted AWMPs. The first table summarizes EWMP implementation for 19 agricultural water suppliers that submitted required SB X7-7 plans in accordance with Water Code Section 10826 and three agricultural water suppliers that submitted required plans in accordance with Water Code Section 10827 (Assembly Bill 3616 Ag Council plans). Most AWMPs did not provide the estimated water savings or the estimated water use efficiency improvements from implementing EWMPs per Water Code Section 10608.48(d). EWMP implementation for agricultural water suppliers submitting plans in accordance with Water Code Section 10828 (Reclamation plans) is summarized in the second table.

[1]Water Code 10608.48(h)

Table ES-1 Efficient Water Management Practices (EWMP) Implementation for SB X7-7 and Ag Council Plans

	Number of Agricultural Water Suppliers			
EWMP	**Implemented**	**Planned**	**Technically Infeasible***	**Estimated Water Savings**
Critical				
Water Measurement	17	5		
Volume-Based Pricing	15	7		
Conditional				
Facilitate Alternate Land Use	8		14	
Recycled Water Use	9	2	11	2
Facilitate On-Farm Capital Improvements	17		5	1
Incentive Pricing Structure	18		4	1
Infrastructure Improvements	19		3	3
Order/Delivery Flexibility	22			1
Supplier Spill & Tailwater Systems	17		5	2
Conjunctive Use	21		1	2
Automated Canal Controls	20		2	1
Facilitate or Promote Customer Pump Test & Evaluation**	15		1	1
Conservation Coordinator	22			1
Water Management Services to Customer	22			1
Identify Institutional Changes	22			1
Supplier Improved Pump Efficiency	16		6	1

* No water suppliers opted out of implementing an EWMP due to not being locally cost effective
** Water Code Section 10827 plans (Ag Council) did not have to address this EWMP (two suppliers), two suppliers did not implement because of what appears to be a misunderstanding of the EWMP, 1 supplier converted from Ag Council plan to Water Code Section 10826 plan and appears to have missed this one.

"Implemented" are the number of water suppliers that implemented each of the individual EWMPs listed to the left.
"Planned" are the number of water suppliers where each of the individual EWMPs are in the planning stage and will be implemented in the near future.
"Technically infeasible" are the numbers of water suppliers where each of the individual EWMPs are not feasibly implemented due to technical reasons.
"Estimated Water Savings" are the number of water suppliers that included an estimated water savings per EWMP in AF per year.

Table ES-2 Efficient Water Management Practices (EWMP) Implementation for Reclamation Water Conservation Plans

	Number of Agricultural Water Suppliers			
EWMP	**Implemented**	**Planned**	**Not Applicable/ Appropriate**	**Omitted***
Critical				
Water Measurement	18	4		
Volume-Based Pricing	18	3		1
Conditional				
Facilitate Alternate Land Use	6		12	4
Recycled Water Use	3	4	11	4
Facilitate On-Farm Capital Improvements	17	1		4
Incentive Pricing Structure	15	2	2	3
Infrastructure Improvements	19		1	2
Order/Delivery Flexibility	15		2	4
Supplier Spill & Tailwater Systems	13		6	3
Conjunctive Use	15	2	2	3
Automated Canal Controls	14	1	5	2
Facilitate or Promote Customer Pump Test & Evaluation	18			3
Conservation Coordinator	18	1		3
Water Management Services to Customer	19			3
Identify Institutional Changes	14		5	3
Supplier Improved Pump Efficiency	15	2	2	3

*Three Reclamation plans are not subject to all Reclamation BMPs. Other suppliers omitted this EWMP, but submitted accepted Reclamation plans and were therefore compliant with SB X7-7.

"Implemented" are the number of water suppliers that implemented each of the individual EWMPs listed to the left.
"Planned" are the number of water suppliers where the individual EWMPs are in the planning stage and will be implemented in the near future.
"Not Applicable/Appropriate" are the numbers of water suppliers where the individual EWMP is not feasibly implemented for a variety of reasons.
"Omitted" are the number of water suppliers that did not address the individual EWMP.

Effect of EWMPs on Agricultural Operations

Estimating the effect of EWMPs on water use and operations is complex. Effects of the EWMPs must be separated from other effects due to, for example, weather, farm prices, and water supply restrictions. Based on historical information, it is accepted in the agricultural community that the implementation of EWMPs improves efficiency and conserves water. Estimates to quantify improvements may be feasible in the future when more historical data are available and EWMPs have been implemented, assessed, and reported over time by more suppliers.

While many of the reported projects have resulted in more efficient water use by suppliers, water use savings from most of these improvements have not been quantified at this time. (See Table 3, Section 5). DWR has reminded water suppliers by letter that they need to evaluate results of the implementation of the various EWMPs described in the table above, and DWR will provide additional information regarding the estimation of water use efficiency improvements in the next AWMP update in 2015.

Recommendations

Recommendations for Legislative Changes

DWR and the agricultural water supplier community have learned a lot from this first cycle of SB X7-7 AWMP submittals and are working together to make improvements in the process for the 2015 cycle of AWMP submittals. At this time, DWR has no recommendations for legislative changes related to AWMPs or EWMPs. After the 2015 AWMPs have been received and reviewed, and after DWR has implemented the AWMP guidance improvements recommended below, DWR will evaluate the AWMP and EWMP content and reporting process and will include any legislative recommendations in the 2016 AWMP report to the Legislature.

Future DWR Actions Related to Agricultural Water Management Plans

DWR will continue to consult with the Agricultural Stakeholder Committee (ASC) and other interested parties and will:

- Continue to conduct public meetings on how to make the plan submittal process for the water suppliers more efficient in order to increase compliance rate.
- Continue to post plans in an online clearinghouse at: http://www.water.ca.gov/wateruseefficiency/ and update the website regularly.
- Continue to administer any available State grant funds, which are critical in assisting eligible water suppliers implement the AWMPs and EWMPs. DWR will work to encourage that funds be provided.
- Work with Reclamation to align their agricultural water management plans with DWRs.
- Identify additional water suppliers who may be required to submit AWMPs.

Future DWR Actions Related to Efficient Water Management Practices

SB X7-7 directs DWR to consider updates to the EWMPs[2]. In 2013, DWR, working with the ASC, completed an initial evaluation of EWMP requirements and implementation. Based on that initial evaluation, DWR did not see an immediate need to update the EWMPs at that time.

- DWR will work with stakeholders, including the ASC, academia, the State Water Resource Control Board, Reclamation, and other agencies to determine if an additional study or evaluation for the purpose of updating the EWMPs is needed. If deemed necessary, a "design team" of stakeholders will prepare the scope of the proposed study or evaluation. Once the study or evaluation is completed, if it is determined that the EWMPs need to be updated, DWR would either proceed with the update through the Administrative Procedures Act (APA) rulemaking process, or recommend that the legislature amend the law.
- DWR will include language and provide guidance in the revised AWMP Guidebook that describes how to better report the quantification of water savings and estimates of water use efficiency improvements occurring from the implementation of past, current, and planned EWMPs.
- DWR will continue to provide technical assistance in water management plan development and the implementation of EWMPs and for determining local cost effectiveness and technical feasibility.
- DWR will, as funding permits, promote research and development of additional EWMPs and new technologies and management strategies that promote water use efficiency and conservation.

[2] Water Code §10608.48(h)

Section 1: Introduction

This report is submitted to the Legislature to comply with two requirements of SB X7-7, the Water Conservation Act of 2009, pertaining to Efficient Water Management Practices (EWMPs) and Agricultural Water Management Plans (AWMPs)[3]. DWR is reporting on the AWMPs submitted since late 2012 through August 2015, and the EWMPs that are reported within those plans. The portion of the report on EWMPs has been prepared in consultation with the State Water Resources Control Board. Recommended legislative changes and DWR actions related to both the AWMPs and EWMPs can be found in Section 6.

This report focuses on the EWMPs and AWMP content as described in SB X7-7 and provides a summary of the EWMPs and outstanding AWMP content submitted in those plans. DWR also accepts Reclamation plans as meeting the requirements of SB X7-7 AWMP reporting. Those plans also include best management practices (BMPs) which are accepted by both Reclamation and DWR. DWR does not summarize Reclamation's BMPs in this report. A table comparing the SB X7-7 EWMPs and Reclamation's BMPs can be found in Appendix B.

SB X7-7 was enacted in November 2009 as part of a comprehensive water package consisting of four bills and a bond measure to address ecological and water management challenges in the Sacramento-San Joaquin Delta. In addition to other provisions, SB X7-7 set additional water use efficiency requirements for urban and agricultural water suppliers. Urban water suppliers are required to calculate baseline water use and set year 2020 water use targets as part of the statewide goal of reducing urban per capita water use 20 percent by 2020.

SB X7-7 requires agricultural water suppliers who supply water to more than 25,000 acres to adopt and submit AWMPs to DWR and to implement EWMPs, including the measurement and volumetric pricing of water deliveries (See Appendix A). This legislative report documents the status of plan submittals, plan content and the implementation of associated practices. Eligibility for state water funds is contingent upon compliance with SB X7-7 requirements. Additional information and legislative reports on other SB X7-7 requirements are available at: http://www.water.ca.gov/wateruseefficiency/sb7/.

[3] Water Code §§10608.48(g), 10845(a) and 10845(b)

Section 2: Legislative History of Agricultural Water Management Planning in California

This section describes the legislative history of both State and federal laws and regulations that establish water resource planning requirements for agricultural water suppliers in California. SB X7-7 allows for the submittal of approved Reclamation and Agricultural Water Management Council (Ag Council) Plans in lieu of plans addressing the SB X7-7 requirements.

A comparison of the federal Reclamation BMPs, and the State of California Assembly Bill (AB) 3616 EWMPs and SB X7-7 EWMPs is included in Appendix B.

Both State and federal laws and regulations have established water resource planning and implementation requirements for agricultural water suppliers in California.

Federal Actions

Federal Reclamation Reform Act of 1982

The Reclamation Reform Act of 1982 (RRA) was the first legislation directive to require agricultural water management planning in California. The RRA requires water suppliers who have water contracts with the United States Bureau of Reclamation (Reclamation) to develop water conservation plans with definite goals, appropriate water conservation measures and a time schedule for meeting those goals (Public law 97-293 sec. 210b). The planning requirement applies to all water suppliers who contract with Reclamation regardless of size. The passage of the Central Valley Project Improvement Act of 1992 (CVPIA) added additional reporting requirements and applies to most of the federal agricultural water suppliers in California. The exceptions are the Tule Lake and Palo Verde Irrigation Districts.

Central Valley Project Improvement Act 1992

The CVPIA expanded on the RRA and directed Reclamation to develop criteria for evaluating the adequacy of all water conservation plans developed by Central Valley Project (CVP) contractors. The CVPIA Criteria, developed and administered by Reclamation, applies to over 75 agricultural water suppliers in the Sacramento and San Joaquin Valleys. Twenty-three CVPIA suppliers are subject to the SB X7-7 requirements.

The 2011 Standard Criteria[4] (Criteria) developed by Reclamation requires CVP contractors to revise their agricultural water management plans every five years and submit annual implementation updates. The Criteria also requires an agricultural water supplier to describe the physical characteristics of the district, provide water supply and use data, and describe the supplier's rules and regulations. Suppliers are further required to describe Best Management Practice (BMP) implementation plans. The Criteria lists five BMPs that must be implemented and 12 BMPs that are only required if they are cost effective (See Appendix B).

[4] United States Bureau of Reclamation Mid-Pacific Region, 2011 Standard Criteria. 2011

California State Actions

Agricultural Water Management Planning Act of 1986 (AB 1658)

AB 1658 of 1986 required all agricultural water suppliers delivering over 50,000 acre-feet of water per year to prepare a report and identify whether the district has a significant opportunity to conserve water or reduce the quantity of saline or toxic drainage water through improved irrigation water management. The legislation applied to the 80 largest agricultural water suppliers in California. The districts that had a significant opportunity to conserve water or reduce drainage were required to prepare water management plans. The legislation required that DWR provide funding to the water suppliers to prepare informational reports and for the preparation of water management plans. This legislation was required to sunset on January 1, 1993.

AB 3616, the Efficient Water Management Practices Act of 1990

In 1990, halfway through the 1988-92 drought, the Efficient Water Management Practices Act, AB 3616, was passed. The Act directed DWR to establish an advisory committee to develop a list of recommended EWMPs for agricultural water suppliers. In 1996, based on the advisory committees' work, agricultural water suppliers, environmental interests, and governmental agencies signed a Memorandum of Understanding (MOU) to implement the EWMPs and establish the Ag Council. Agricultural water suppliers who signed the MOU and joined the Ag Council agreed to voluntarily submit water management plans to the Ag Council once every five years.

The AWMP criteria in the MOU for agricultural water management plans were similar to Reclamation's criteria and requested water suppliers to describe these key elements: service area, water supplies, water use, service area water budget and supply reliability, and the implementation of EWMPs. The major difference is that AB 3616 was a voluntary planning activity agreed to by the signatories of the MOU, while the federal program was mandatory.

Plans submitted to the Ag Council were reviewed both by the DWR and the Ag Council. The Ag Council could endorse submitted plans or return the plans with comments to the water supplier with suggested additions or revisions.

By 2009, 79 water suppliers and four environmental groups had signed the MOU. Of the 79 water suppliers that signed the MOU, 66 water suppliers had submitted plans that were endorsed by the Ag Council. The 79 water suppliers represented nearly six million acres of California's irrigated agricultural land.

The Ag Council membership voted in March of 2013 to dissolve the organization, concluding that with the passage of SB X 7-7 and the adoption of state mandated water management planning, the Ag Council's role in promoting voluntary efforts was no longer needed.

AB 1404, Assembly Bill 1404 of 2007: Aggregated Farm-Gate Delivery Report

AB 1404 required, for the first time, that agricultural water suppliers serving at least 2,000 acres of agricultural land (or 2,000 acre feet annually for agricultural purposes) provide DWR with an annual report of the aggregated water delivered to customers. The report is due annually on July 31 of each year[5].

Senate Bill X7-7, Water Conservation Act of 2009

SB X7-7 required agricultural water suppliers with greater than 25,000 irrigated acres to adopt and submit AWMPs with specific content to DWR and to implement EWMPs including the measurement and volumetric pricing of water deliveries by December 31, 2012. SB X7-7 also permits water management plans that are part of a regional plan to be submitted, providing that those plans meet the requirements of SB X7-7. The plans must be updated by December 31, 2015, and then every five years thereafter. Agricultural water suppliers that provide water from 10,000 up to 25,000 irrigated acres, excluding recycled water, are not required to prepare and submit plans unless state funds are available to support the planning efforts[6].

SB X7-7 permits water suppliers that are contractors under RRA or CVPIA requirements, or who were members of the Ag Council under the AB 3616 criteria, to submit the plans in lieu of a plan meeting the SB X7-7 criteria. Suppliers submitting an RRA, CVPIA, AB 3616 plan, or regional plan however, must provide additional information on water measurement and pricing to meet the SB X7-7 requirements. Of the 54 suppliers that DWR estimates are required to submit plans, 24 are Reclamation (RRA, CVPIA) contractors and two are Ag Council signatories (AB 3616).

With the dissolution of the Ag Council in March of 2013, the submittal of Ag Council plans will no longer be an option beginning in the 2015 cycle.

Agricultural Water Management Plan Contents

SB X7-7 determined the contents that were to be described in the AWMPs. DWR established plan review criteria to determine if the water suppliers met the requirements of SB X7-7. Contents included in the AWMPs are:

- A description of the service area and infrastructure
- A description of the quantity and quality of water resources
- A description of water uses
- An establishment of a water budget
- A description of previous and planned implementation of EWMPs
- An analysis of climate change's impacts on service area

[5] The reporting form can be found on DWR's web site at: http://www.water.ca.gov/wateruseefficiency/agricultural/farmgatedelivery.cfm
[6] Water Code 10853

SB X7-7 Efficient Water Management Practices Requirements

SB X7-7, as well as Reclamation and AB 3616, requires water suppliers to describe the implementation of 16 EWMPs with exemptions for those that are not locally cost effective or technically feasible.

SB X7-7 considered two of the 16 EWMPs to be critical and directed water suppliers to measure the volume of water delivered to customers and adopt a pricing structure based at least in part on quantity delivered. To provide more direction in implementing these practices, the legislation directed DWR to adopt regulations that provide for a range of options. In meeting this provision of SB X7-7, the Agricultural Water Measurement Regulation (Regulation) was adopted on July 11, 2012 and amended on August 28, 2013 and requires agricultural water suppliers, as defined by SB X7-7, to measure water with devices that comply with the Regulation's accuracy standards and submit documentation of conformance to the Regulation's conditions[7]. For example, if the water supplier is not measuring water at the farm-gate (i.e., it is measuring water use at the lateral), the water supplier must provide specific documentation and justification in the plan, as required by Title 23 CCR §597.3(b) and outlined in Chapter 6 (Appendix B contains the relevant regulation).

SB X7-7 Exemptions

The SB X7-7 requirements do not apply to any agricultural water supplier that is party to the Quantification Settlement Agreement (QSA) for the Colorado River, so long as the QSA remains in effect[8]. These suppliers include the San Diego County Water Authority, Coachella Valley Water District, and Imperial Irrigation District[9].

AWMP and EWMP Compliance Required for Grant Eligibility

Since July 1, 2013, an agricultural water suppliers must submit an AWMP and implement applicable EWMPs to be eligible for a water grant or loan awarded or administered by the State. Water suppliers not implementing all of the applicable EWMPs may become eligible for state water grants and loans if suppliers provide a schedule, financing plan, and budget for the implementation of the required EWMPs. Grant or loan funds may be requested to implement EWMPs to the extent the grant or loan proposal is consistent with the water fund eligibility requirements.

[7] 23 CCR §597, et seq.
[8] Water Code §10608.8(d)
[9] http://www.sdcwa.org/quantification-settlement-agreement

Section 3: DWR's Activities to Implement Senate Bill X7-7

Agricultural Stakeholder Committee, established July 2010

DWR established an Agricultural Stakeholder Committee (ASC) in July of 2010 to provide guidance and input to DWR while developing the required SB X7-7 guidelines and regulations. ASC membership includes agricultural water suppliers, water user associations, environmental advocacy groups, academia, and interested parties. The ASC was consulted for each of the projects that DWR was required to implement by SB X7-7. The ASC and its subcommittees reviewed technical materials and documents and provided input to DWR's project management team in implementing SB X7-7 requirements. The ASC meetings were open to the public and served as part of the public process required for implementing SB X7-7. The ASC met 36 times between July 2010 and November 2013. Prior to forming the ASC, DWR held listening sessions to gather public input.

ASC membership includes agricultural water suppliers, water user associations, environmental advocacy groups, academia, and interested parties. The ASC and its subcommittees review technical materials and documents and provide input to DWR's project management team.

Agricultural Water Measurement Regulation adopted July 2012

SB X7-7 directed DWR to develop an agricultural water measurement regulation [10]. Working with the ASC, DWR developed an initial emergency regulation which was adopted July 22, 2011. During the permanent regulation rule making, DWR held two public hearings, one in August and another in September 2011. The permanent regulation was approved by the California Water Commission on May 8, 2012 and approved by the Office of Administrative Law on July 11, 2012. Key provisions of this regulation include:

- Agricultural water suppliers that supply water to greater than 25,000 irrigated acres are to measure the volume of water delivered to customers with sufficient accuracy, so as to comply with farm-gate delivery measurement requirements.
- A range of options for agricultural water measurement is provided, including:
    - ±12% accuracy by volume for existing measurement devices.
    - ±5% accuracy by volume for new devices that are laboratory certified.
    - ±10% accuracy by volume for new devices that are field tested.
- Establishment of accuracy certification, records retention, device performance, and reporting standards.
- The AB 1404 aggregated farm-gate delivery form, incorporated into this regulation by reference.

[10] Water Code §10608.8(i)

Agricultural Workshops Conducted in 2012

DWR conducted a series of public workshops in August and September of 2012 to provide information on the requirements of SB X7-7, including the requirement to submit an AWMP, the water measurement regulation, and the aggregated farm-gate delivery report. Workshops were organized with the assistance of the Ag Council and held in Bakersfield, Fresno, Modesto, and Orland. These workshops primarily targeted agricultural water suppliers, consultants, and the interested public.

AWMP Guidebook Released and Technical Assistance Provided in 2012

In October 2012, DWR released *A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan* (Guidebook). The Guidebook details how a water supplier can comply with SB X7-7 in their AWMPs[11].

Nine stakeholder meetings were held from April 2011 through October 2012, and a public workshop was held on February 1, 2012 to receive input on this first Guidebook content. DWR, working with the ASC and through a public process, released a revised version of the Guidebook in June 2015, in preparation of the required 2015 adoption and submittal date.

Plans Reviewed in 2013-2015

Once agricultural water suppliers submit their AWMPs, DWR staff reviewed them for completeness, and whether each water code section has been addressed. DWR does not have the authority to approve, disapprove, or critique individual plans[12].

DWR reviewed the submitted AWMPs in the spring and summer of 2013, 2014 and well into 2015 as plans were submitted. The results of this review are summarized in Section 5.

In November 2013, DWR sent letters to water suppliers that had not yet submitted plans reminding them of the AWMP requirement. This was followed with telephone calls to General Managers of the non-compliant districts in January 2014. Later in January 2014, an additional letter reminding non-compliant water districts of the submittal requirements was sent by DWR's Director, Mark W. Cowin. DWR continued working with various agencies to assist with compliance throughout 2015.

[11] The Guidebook can be found on DWR's web site:
http://www.water.ca.gov/wateruseefficiency/sb7/docs/AgWaterManagementPlanGuidebook-FINAL.pdf
[12] Water Code §10845(d)

Section 4: Status of Adopted Agricultural Water Management Plans

As of August 2015, DWR has received Agricultural Water Management Plans (AWMP) from 64 agricultural water suppliers. These plans represent approximately 3.6 million acres or roughly 44 percent of the 8.13 million acres of irrigated lands estimated in the California Water Plan Update 2013.

Status of Plans Submitted

- A total of 54 water suppliers were identified as, "Required to Submit Plans."
  Of these:
    - 44 water suppliers submitted plans, representing 81% compliance.
    - 10 water suppliers did not submit plans as required.
        - 2 of these water suppliers have submitted 2015 AWMPs to DWR
        - 2 of these water suppliers have notified DWR of intent to submit
        - 6 water suppliers have not responded to date
- 20 water suppliers have voluntarily submitted plans (This includes suppliers that provided water to less than 25,000 irrigated acres, were a QSA* signatory, or wholesale supplier.)
- DWR received 45 AWMPs representing 64 water suppliers – 39 plans were required and 6 were voluntary. An additional 14 suppliers have submitted their voluntary plans as part of the two regional plans received.
- DWR received two regional water management plans:
    - 1 Sacramento River Settlement Contractors Regional Plan (10 water suppliers)
    - 1 Feather River Regional Plan (9 water suppliers)

*QSA =Quantification Settlement Agreement

SB X7-7 requires agricultural water suppliers supplying more than 25,000 irrigated acres (less acres irrigated with recycled water) to submit an AWMP. As noted above, DWR identified 54 water suppliers meeting these criteria that are required to submit AWMPs. DWR recognizes that the number of identified water suppliers submitting water management plans may not accurately reflect the actual total required to submit because of the information available to DWR for making this determination may have not been exhaustive. DWR will attempt to further investigate this during the next round of AWMP submission.

All of the agricultural water suppliers that submitted plans and have met the general requirements of the Water Code[13] are listed in Table 1. Some of those water suppliers submitted plans with minor errors or discrepancies and have been notified by mail with recommendations that these errors be addressed in their 2015 plans.

Agricultural water suppliers required to submit an AWMP and have not done so (including some who are known to be in the planning process) are listed in Table 2.

[13] Pursuant to Water Code Part 2.8, §10845

Table 1: Agricultural Water Suppliers that Submitted 2012 Plans to DWR

Water Supplier	Date	Acres1	Plan Type
1. Alta ID	12/14/2012	109,758	Ag Council MOU/Sept 2003, SBX7-7 Addendum/Dec 2012
2. Anderson-Cottonwood ID**	3/11/2013	10,038	Sac R. Settlement Contract/2011
3. Arvin-Edison WSD	1/2/2013	111,250	CVPIA/Dec 2008
4. Belridge WSD	5/3/2013	39,000	SBX7-7/ Dec 2012
5. Berrenda Mesa WD	5/3/2013	27,200	SBX7-7/ Dec 2012
6. Biggs-West Gridley WD*	9/18/2014	26,000	SBX7-7/ Dec 2012
7. Buena Vista WSD	6/25/2014	48,810	SBX7-7/ Dec 2012
8. Butte WD*	9/18/2014	17,600	SBX7-7/ Dec 2012
9. Cawelo WD	5/20/2014	33,450	SBX7-7/ Dec 2012
10. Central California ID	8/10/2015	141,500	CVPIA/June 2014
11. Chowchilla ID	12/27/2012	65,000	CVPIA/2009
12. Coachella Valley WD	1/15/2013	78,530	QSA(L. Colorado River)/2011
13. Columbia Canal Co.	1/15/2013	15,518	CVPIA/Dec 2012
14. Colusa County WD	1/10/2014	29,204	CVPIA/2009
15. Del Puerto WD	1/18/2013	38,566	CVPIA/July 2011
16. Delano-Earlimart ID	7/23/2014	48,717	CVPIA/Oct 2009
17. Dudley Ridge WD	1/15/2013	18,000	SBX7-7/ Dec 2012
18. Feather WD*	9/18/2014	8,200	SBX7-7/ Dec 2012
19. Firebaugh Canal WD	9/12/2015	22,600	CVPIA/June 2014
20. Garden Highway MWC*	9/18/2014	3,500	SBX7-7/ Dec 2012
21. Glenn-Colusa ID**	3/11/2013	135,615	Sac R. Settlement Contract/2011
22. Kern-Tulare WD	9/5/2013	19,000	CVPIA/July 2009
23. Laguna ID	1/29/2013	30,913	SBX7-7/ Dec 2012
24. Lost Hills WD	5/3/2013	31,850	SBX7-7/ Dec 2012
25. Madera ID	12/27/2013	94,077	CVPIA/2009
26. Merced ID	9/15/2013	116,011	SBX7-7/ Dec 2012
27. Meridian Farms WC**	3/11/2013	9,100	Sac R. Settlement Contract/2011
28. Modesto ID	12/28/2012	67,392	SBX7-7/ Dec 2012
29. Natomas Central MWC**	3/11/2013	24,000	Sac R. Settlement Contract/2011
30. Nevada ID	12/10/2012	29,400	SBX7-7/ Dec 2012
31. North Kern WSD	8/22/2014	52,000	SBX7-7/ Dec 2010
32. Oakdale ID	1/23/2013	51,221	SBX7-7/ Dec 2012
33. Orange Cove ID	2/6/2013	26,040	CVPIA/2010
34. Orland-Artois WD	12/10/2012	28,200	CVPIA/ Dec 2008
35. Panoche WD	10/17/2014	37,066	CVPIA /March 2014
36. Pelger Mutual WC**	3/11/2013	2,937	Sac R. Settlement Contract/2011

Water Supplier	Date	Acres1	Plan Type
37. Plumas MWC*	9/18/2014	3,400	SBX7-7/ Dec 2012
38. Princeton-Cordora-Glenn ID**	3/11/2013	11,738	Sac R. Settlement Contract/2011
39. Provident ID**	3/11/2013	14,424	Sac R. Settlement Contract/2011
40. Rancho California WD	7/16/2013	14,146	SBX7-7/ Dec 2012
41. Reclamation District 1004**	3/11/2013	19,755	Sac R. Settlement Contract/2011
42. Reclamation District 108**	3/11/2013	47,620	Sac R. Settlement Contract/2011
43. Richvale ID*	9/18/2014	29,300	SBX7-7/ Dec 2012
44. San Benito County WD	11/8/2012	36,184	CVPIA/ July 2009
45. San Luis Canal Co.	8/10/2015	43,000	CVPIA/June 2014
46. San Luis WD	6/13/2014	33,819	CVPIA/2013
47. Semitropic WSD	1/30/2014	107,520	SBX7-7/ Dec 2012
48. Shafter-Wasco ID	1/10/2014	30,755	CVPIA/2013
49. Solano ID	7/23/2014	73,061	CVPIA/Oct 2009
50. South San Joaquin ID	12/28/2012	47,292	SBX7-7/ Dec 2012
51. South Sutter WD	1/18/2013	44,200	Ag Council MOU/Nov 2003
52. Stockton-East WD	9/30/2014	143,000	CVPIA/Jan 2014
53. Sutter Extension WD*	9/18/2014	20,500	SBX7-7/ Dec 2012
54. Sutter Mutual WC**	3/11/2013	46,746	Sac R. Settlement Contract/2011
55. Tudor MWC*	9/18/2014	2,600	SBX7-7/ Dec 2012
56. Tulare ID	12/17/2012	58,773	CVPIA/2010
57. Tulare Lake Basin WSD	12/2/2013	170,000	Ag Council MOU/Sept 2009
58. Tule Lake ID	9/8/2014	96,000	RRA/Sept 2011
59. Turlock ID	1/8/2013	146,380	SBX7-7/ Dec 2012
60. Western Canal WD*	9/18/2014	58,200	SBX7-7/ Dec 2012
61. Westlands WD	1/2/2013	570,000	CVPIA/Apr 2009
62. Wheeler Ridge Maricopa WSD	3/12/2015	108,845	SBX7-7/ Dec 2012
63. Yolo Co FCWCD	10/15/2013	46,000	SBX7-7/ Dec 2012
64. Yuba County Water Agency	1/22/2013	0 (wholesaler)	SBX7-7/ Dec 2012

[1] Only Suppliers providing water to more than 25,000 irrigated acres (excluding acreage irrigated by recycled water) are required to adopt and submit plans.

*These water districts are included in the Feather River Regional AWMP

**These water districts are included in the Sacramento Valley Regional Plan from the Bureau of Reclamation Sacramento River Settlement Contractors

Table 2: Agricultural Water Suppliers Identified as Requiring AWMPs that did not submit 2012 AWMPs as of October 15, 2015

Ag Water Supplier	Irrigated Acres	Plan Type	Comments
Kern Delta WD	107,635	SBX7-7	
Consolidated ID*	138,971	SBX7-7	2015 Plan under revision
Corcoran ID	40,655	SBX7-7	
Lakeside Irrigation WD	27,621	SBX7-7	
Palo Verde ID	106,582	RRA	L. Colorado River
Central San Joaquin WCD	48,000	CVPIA	
Fresno ID	142,000	CVPIA	Waiting USBR approval
Lower Tule River ID	84,426	CVPIA	
Pixley ID	48,302	CVPIA	
Southern San Joaquin MUD	43,893	CVPIA	Waiting USBR approval
Total	**608,459**	**10**	

Note: USBR = United States Bureau of Reclamation; RRA: Reclamation Reform Act of 1982
*Corcoran ID and Consolidated ID did not submit 2012 AWMP but submitted 2015 AWMPs in June and August 2015. The status of these can be found on the DWR website: www.water.ca.gov/wateruseefficiency/sb7/planlist2015.cfm.

Examples of Outstanding Plan Contents

In the AWMP under SB X7-7, agricultural water suppliers are required to describe, among others, certain elements or content such as service area, the quantity and quality of water resources, an analysis on the effect of climate change, and previous water management activities water use information regarding EWMPs[14]. While the legislation does not provide much detail on methodology to describe this content, some agricultural water districts provided outstanding examples:

- Turlock Irrigation District (ID) and Merced ID thoroughly discussed the potential effects of climate change on water supplies.
- Turlock ID included a synthesis of readily available data, such as data available from the California Data Exchange Center. In addition, Turlock ID included a table summarizing the district's strategies to mitigate climate change impacts and provided an AWMP that followed DWR's suggested format.
- Merced ID included a detailed discussion of regional climate change projections and impacts to water supply.
- Oakdale ID provided detail on public education and outreach and how the process helped inform the public.
- The Feather River Regional AWMP included three water suppliers that are required to file AWMPs: Western Canal Water District (WD), Richvale ID, and Biggs-West Gridley WD. There were six water suppliers not required to file AWMPs: Butte WD, Sutter Extension WD, Feather WD, Garden Highway Mutual Water Company (MWC), Pumas MWC, and Tudor MWC. The result of these nine water suppliers coming together to produce a detailed regional plan provides a good example on how the districts can cooperate regionally and improve water use efficiency and regional planning in the near future.

[14] Water Code §10845(b)

Section 5: Status of EWMP Implementation

Efficient Water Management Practices Reporting

The Water Code requires that an agricultural water supplier include in its plan "a report on which EWMPs have been implemented or 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 ten years in the future. If a supplier determines that a EWMP is not locally cost-effective or technically feasible, the supplier shall submit information documenting that determination." (Water Code §10608.48(d))[15]. SB X7-7 legislation allowed suppliers to submit plans that were prepared for different agencies and organizations, including the Ag Council and Reclamation.

There are two classifications of EWMPs: critical and conditional. Critical EWMPs include measurement and pricing and must be implemented by the supplier. Conditional EWMPs are subject to both cost-effectiveness and technical feasibility.

This section focuses on the EWMPs as described in SB X7-7 and provides a summary of the EWMPs in all required plans that were submitted, including Reclamation plans, which include BMPs that are accepted by Reclamation and also by DWR. A table comparing the SB X7-7 EWMPs and Reclamation's BMPs can be found in Appendix B.

There are two classifications of EWMPs: critical and conditional. Critical EWMPs include measurement and quantity pricing and must be implemented by the supplier. Conditional EWMPs are subject to both cost-effectiveness and technical feasibility. EWMPs that are locally cost-effective and technically feasible must be implemented by agricultural 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 sufficient funding is provided. EWMPs that are not locally cost-effective or technically feasible may be implemented at the supplier's discretion but must be reported and documented in the AWMP by the water supplier as such.

Critical Efficient Water Management Practices

Critical EWMPs must be implemented by the agricultural water supplier (Water Code §10608.48(b)). These include:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10[16].
(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

[15] Per Water Code §10608.48(g)
[16] Subdivision (a) of Section 531.10 requires agricultural water suppliers to submit an annual report to DWR that summarizes aggregated farm-gate delivery data, on a monthly or bimonthly basis, using best professional practices.

SB X7-7 directed water suppliers to measure the volume of water delivered to customers. The legislation also directed DWR to develop an agricultural water measurement regulation that provides for a range of options that water suppliers may use to comply. The Agricultural Water Measurement Regulation (Title 23 CCR §597, et seq.) (Regulation) requires agricultural water suppliers, as defined by SB X7-7, to measure water with devices that comply with the Regulation's accuracy standards and other reporting criteria.

The Regulation also encourages water suppliers to report the total number of farm-gates and lateral gates in the service area and the number of farm-gates and lateral gates complying with the measurement regulation. They should also include the number of each device planned for future water use. If the water supplier is not measuring water at the farm-gate, (i.e., it is measuring water use at the lateral) the water supplier must provide specific documentation and justification in the AWMP, as required by Title 23 CCR §597.3(b) and outlined in Section 6 (Appendix B contains the relevant regulation).

Measurement and pricing provide growers and water suppliers with information for on-farm and supplier operations. The benefits include an equitable distribution of water and recovery of costs, a method of monitoring supplier level and on-farm efficiency, and field-level, applied water use information. Measurement and pricing provide growers with financial incentive to improve irrigation efficiency and reduce the volume of applied water.

Implementation of the two critical EWMPs, measurement and quantity pricing, varies among suppliers.

Of the 44 agricultural water suppliers that submitted their required plans (SB X7-7, Ag Council, or Reclamation), 32 of these suppliers were compliant with both critical EWMPs, three were compliant with just the measurement EWMP, and one was compliant with just the quantity pricing EWMP.

Flow measurement device types used to comply with the measurement requirements vary among these agencies: some have only propeller meters and others have a range of devices, including flow meters, rated pumps, weirs, and submerged orifices. Quantity pricing practices also vary from uniform block pricing to tiered rates and decreasing block rates, with some unique situations. For example, the Tulare Lake Basin Water Storage District operates primarily as a distribution and storage system and does not have control of quantities or prices for any of its water supplies. They reported that all deliveries to end-users are measured and billed based on water supply source. Water that comes from the Kings and Tulare Rivers are billed to all users on a uniform per acre basis. However, water from the State Water Project (SWP) is billed to the end-user based on charges from DWR, which depends on volume delivered, and the district operations and maintenance costs that are attributable to the SWP water.

Nine agricultural water suppliers that were not yet fully compliant with the measurement critical EWMP have submitted compliance plans to meet the requirements of Water Code §10608.48(b) and Title 23 CCR §597.1(a). For example, Glenn-Colusa Irrigation District did not meet all of the code section requirements. To meet code requirements, they are piloting a program to determine workable metering solutions, infrastructure modification requirements, and implementation costs.

Of the 11 agricultural water suppliers that were not yet fully compliant with the quantity pricing EWMP, 10 suppliers are planning to implement and one supplier is a Reclamation contractor that meets Reclamation's requirements (not all federal contractors are subject to all federal BMPs).

Outstanding examples of water suppliers that are either meeting or trying to meet these critical EWMP requirements include:

- South San Joaquin Irrigation District
- Reclamation District 108
- San Benito County Water District
- Westlands Water District

Conditional Efficient Water Management Practices

In addition to the two critical Efficient Water Management Practices, there are 14 conditional EWMPs that are only required if they are both locally cost-effective and technically feasible. Each of the conditional EWMPs is described below and examples are provided.

1 – Alternative Land Use

This EWMP requires a water supplier to facilitate alternative land use for lands with high water duty (i.e., rates of irrigation water application) or if irrigation contributes to significant problems, including problem drainage. Implementation of this EWMP ranges from "not applicable" because there are no high duties or problem drainage, to implementation through the elimination of irrigation on some farmland. Generally, areas of problem drainage are on the west side of the San Joaquin Valley where irrigation of soils containing ancient marine sediments can result in shallow groundwater with high levels of salt. Conceptually, lands with exceptionally high water duties could be in any region of the State.

The benefits of implementing an alternative land use EWMP are that growers can make better use of limited land and water resources. The elimination of irrigation on lands affected by drainage reduces salt loading to both surface and groundwater. The reduction in water use by a crop extends suppliers' water resources to other lands. For example, by retiring 100,000 acres of problem lands, Westlands Water District has decreased salt loading and increased their water supply reliability for more productive land.

Of the 44 agricultural water suppliers submitting required plans, 14 water suppliers report that they are currently implementing this EWMP. Examples of how districts implemented this EWMP include:

- Westlands WD, on the west side of the San Joaquin Valley, purchased 100,000 acres of land with problem drainage and now manages it for dry land farm and grazing. This action reduced or eliminated problem drainage coming from these lands. By retiring 100,000 acres of problem lands, Westside WD has decreased salt loading and increased their water supply reliability for more productive land.

- Lost Hills WD reported that, through alternative cropping, growers in a portion of its district have reduced problem drainage from 2,000 AF/year to less than 100 AF/year. Also, the supplier facilitated the long term transfer of SWP contract water from lands considered less productive in the eastern area of the district to lands better suited for permanent crop planting.
- Del Puerto Water District and Buena Vista Water Storage District, worked with landowners to retire 7,000 acres of unproductive land.
- Cawelo WD converted high duty lands in a floodplain to groundwater recharge areas.
- Buena Vista Water Storage District removed 3,000 acres of poorly drained lands from active irrigation.
- In 2012, the Rancho California WD implemented their Water Savings Incentive Program, which facilitates alternate land use through the offering of financial incentives for replacing crops with lower water use varieties.

Twenty-six of the agricultural water suppliers submitting required plans reported that they did not implement this EWMP because it was not applicable or not technically feasible. For example, Oakdale Irrigation District (OID) provided the following statement:

> *Areas outside of the Lands with exceptionally high water duties or whose irrigation contributes to significant problems are not found within the District boundaries, nor within the District Sphere of Influence. Furthermore, OID's rules and regulations prohibit wasteful use of water, preventing exceptional water duties or significant problems from occurring.*

The remaining four agricultural water suppliers submitted accepted Reclamation plans that did not address this EWMP.

2 – Recycled Water Use

This EWMP requires that a water supplier facilitate the use of available recycled water that otherwise would not be used beneficially, meets health and safety criteria, and does not harm crops or soils.

Responses to this EWMP range from having no access to urban wastewater that meets the required criteria, to the use of wastewater as a supply component. Additionally, several agricultural suppliers report that they are in discussion with municipal and industrial (M&I) wastewater producers for their water or are conducting feasibility studies for the use of wastewater.

Use of recycled wastewater provides a benefit by making more complete use of a water source, so long as it does not harm crops or soil. This allows the water supplier to better meet customers' water supply needs.

Of the 44 agricultural water suppliers submitting required plans, 12 water suppliers report that they facilitate recycled water use for their customers. For example:

- Cawelo WD blends an average of 30,000 acre-feet per year of oil-field wastewater with their surface water source prior to delivering it to end-users.
- Shafter-Wasco ID and Turlock ID reported a combined 8,466 acre-feet per year of recycled water use.

An additional six agricultural water suppliers submitting required plans report that they are either in discussions with neighboring M&I wastewater utilities or are conducting a feasibility study. These suppliers are located in the San Joaquin Valley. For example:

- Orange-Cove ID reported that it had used recycled water in the past but stopped due to water quality concerns and are investigating new opportunities with the City of Orange Cove.
- Del Puerto WD is pursuing a feasibility study to use recycled urban wastewater from the cities of Modesto and Turlock who are estimated to have about 47,000 acre-feet per year of available reclaimed water.

Half (22) of the 44 agricultural water suppliers submitting required plans report that they have no access to recycled water supplies that meet health and safety criteria and crop requirements or there are no available reclaimed water supplies in close enough proximity.

The remaining four agricultural water suppliers submitted accepted Reclamation plans and did not address this EWMP.

3 – Facilitate the Financing of On-Farm Irrigation Capital Improvements

Suppliers implementing this EWMP could facilitate the financing of improvements to on-farm irrigation systems by providing or obtaining funding for customers, providing low interest loans, cataloging available funding sources and procedures, or administering programs.

Suppliers have implemented this EWMP in different ways, including financing of on-farm irrigation systems and infrastructure through grants, loans, or rebates, or providing referrals to outside funding sources such as state grants and the Natural Resources Conservation Service's EQUIP. System improvements could include irrigation and drainage system components and design, to on-farm regulating and tailwater basins.

Most (34) of the 44 agricultural water suppliers required to submit plans have implemented this EWMP. While many do not offer direct financing programs, themselves, most stated that when they become aware of funding sources, they provide water users with the information. Other agricultural water districts offer a grant, loan, or cost-share. These suppliers are primarily in the San Joaquin Valley.

The benefit of having an on-farm capital improvement program is that it provides growers with a means to improve their on-farm irrigation systems or their flexibility in water delivery, through access to capital and/or overall lower cost. Typically when an on-farm system is improved, the cost of labor decreases and crop productivity may increase. Improved on-farm systems benefit the water supplier by reducing tailwater flows and can help improve water quality.

For example:

- Chowchilla ID offered a 25 percent cost share for the purchase of a flow meter.
- Merced ID offered $200/acre in on-farm upgrades for using the supplier's surface water.
- Westlands WD leased irrigation systems to its growers.

Two more water suppliers are planning to implement this EWMP and provide information on funding sources to customers.

Four of the 44 agricultural water suppliers required to submit plans report that this EWMP is not appropriate for them to offer customers.

- Berrenda-Mesa WD and Lost Hills WD report that more than 99% of their acreage is already under micro-irrigation and therefore the EWMP was not applicable to them.
- Alta ID reports that potential benefit is low and, "It is the direction of the current Board to not offer limited economic programs to selected landowners. On-farm improvements may enhance property values or provide an economic competitive advantage in a manner which is not equitable to all landowners."
- Tulare Lake Basin WSD reports that water users already use highly efficient irrigation practices and there would be little to no water savings benefits with potential negative effects on conjunctive use.

The remaining four agricultural water suppliers submitted accepted Reclamation plans and did not address this EWMP.

4 – Incentive Pricing Structure

Incentive pricing creates a water rate structure that promotes one or more of the following goals:

- More efficient water use at the farm level such that it reduces waste
- Conjunctive use of groundwater
- Appropriate use of groundwater
- Reduction in problem drainage
- Improved management of environmental resources

The variety of goals for incentive pricing listed above is reflected in the variety of programs implemented by suppliers. Some suppliers use incentive pricing to encourage or manage conjunctive use, while others use tiered pricing to encourage more efficient use of irrigation water.

The benefit of incentive pricing is that it gives customers a strong price signal to encourage water management practices that meet the stated objective. For example, low prices charged for surface water during periods of high or excess supply encourages recharge of groundwater ensuring a better groundwater supply during dry years.

Most (34) of the 44 agricultural water suppliers required to submit plans have implemented this EWMP. Fifteen[17] of the Central Valley water suppliers that implemented this EWMP reported that they use incentive pricing to encourage growers to use surface water over groundwater. This approach is taken to provide both direct recharge and in lieu recharge of groundwater. Eight of the water suppliers that implemented this EWMP reported that the high cost of purchased water is an incentive to use it efficiently. Other examples of implementation include:

- Modesto ID reported that it uses tiered rates to encourage more efficient water use at the farm level.
- Beldridge WD and Lost Hills WD implement this EWMP through market transfers and exchanges within and outside of the districts.

Of the 10 agricultural water suppliers that submitted required plans and did not implement this EWMP, 2 water suppliers are planning to implement, 5 water suppliers reported that it was not applicable or inappropriate for various reasons, and 3 water suppliers submitted accepted Reclamation plans and did not address this EWMP. Reasons for not implementing this EWMP included:

- Colusa Co WD reported deficit allocations already force efficient use
- Alta ID reported that water users already practice conjunctive use of groundwater and higher surface water prices may negatively affect the conjunctive use with little to no water savings benefits.
- Tulare Lake Basin WSD reported that it cannot control deliveries or variable costs, which are set by outside agencies, and water users already use efficient irrigation and practice conjunctive use of groundwater
- Turlock ID reported not implement pricing incentives for on farm conservation because of salt balance concerns.

5 – Infrastructure Improvements

Infrastructure improvements include expanding line or pipe distribution systems and constructing regulatory ('regulating') reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage. This EWMP also enables the implementation of other EWMPs, such as more flexible delivery, spill reduction, conjunctive use, and automation.

Implementation of this EWMP ranges from no lining or reservoir activity to an aggressive capital improvement program of canal lining and the construction of regulating reservoirs. The primary reasons that suppliers report no lining activity is because the existing conveyance system is either fully piped or lined, lining or piping the rest is not locally cost-effective, or the unlined sections are used as a component of a supplier's conjunctive use program.

[17] South Sutter WD reported that they did not implement this EWMP in order to encourage surface water use over groundwater. However, by keeping surface water supply costs low to encourage surface water use over groundwater, they actually are implementing this EWMP.

Of the 44 agricultural water suppliers that submitted required plans, 39 are implementing conveyance system lining or piping, regulatory reservoirs, or a combination of the two. Two of the water suppliers not implementing this EWMP report that canal lining or piping is not applicable because of slow seepage through soils. One of these suppliers reports no regulatory reservoirs because it is not locally cost-effective and the other reports that the system is already regulated by the Thermalino Afterbay. The other three water suppliers not implementing this EWMP submitted accepted Reclamation plans.

a) Conveyance system lining or piping.

Of the 44 agricultural water suppliers that submitted required plans, 33 reported that they implemented conveyance system lining or piping.

The benefits of a conveyance system lining or piping EWMP are that it enables water suppliers to better meet their customers' needs by providing more flexibility in deliveries and extending the available water supply. In addition, maintenance and labor costs decrease with piping and lining of conveyance facilities.

- Eight of these water suppliers reported that they currently have only a minor amount of unlined/unpiped conveyance systems, or none at all; five of these water suppliers are located in the San Joaquin Valley, two are located in the Sacramento Valley, and one in San Benito County.
- Other water suppliers, located throughout the Central Valley, reported that they have lined a majority of their canals and have on-going leak repair and maintenance programs for existing lined and piped systems.
- Nevada ID reported that this EWMP is not locally cost-effective, but they still implement and spend $250,000 per year to line canals.
- Two of the water suppliers that have implemented canal lining or piping report that it is not locally cost-effective to line or pipe the rest; Solano ID and Modesto ID reported that they have lined portions of their conveyance canals and included a statement that lining the remaining unlined portions is not locally cost-effective.
- Four of the water suppliers that implemented canal lining or piping report that it is not applicable to line or pipe the rest because the canals contribute to groundwater recharge. For example:
    - South Sutter WD reported that it has lined or piped portions of its system, but it is not appropriate for this extensively because the surface water delivery system helps meet groundwater recharge for this conjunctive use system; the conveyance losses account for approximately 6,000 AF per year of groundwater recharge.
    - Turlock ID reports that it is 92% complete but not applicable to line or pipe the remainder. The remaining areas of unlined canals are primarily in upland clay soils with low seepage rates. The relatively small volume of seepage from the remaining unlined and partially lined canals provides beneficial groundwater recharge as they occur near the principal overdraft area to the east of TID.

Of the remaining 10 water suppliers that do not line or pipe their canals, Richvale ID and Western Canal WD report that this EWMP is not applicable because soil seepage is already slow in unlined

systems, Stockton-East WD and Yolo Co FCWCD report that they do not line or pipe canals because unlined systems provide important groundwater recharge, and the remaining six are accepted Reclamation plans.

b) Construction of regulating reservoirs.

Regulating reservoirs are used to regulate the flow in canals and provide for more uniform and controllable flows. Of the 44 agricultural water suppliers submitting required plans, 20 report that they implement regulating reservoirs. For example:

- Berrenda-Mesa WD reported that it has 450 AF of regulating reservoir capacity, another supplier reported 59 AF of regulating reservoir capacity.
- Merced ID reported that it has nine regulating basins with a total capacity of 3,950 AF.

Four water suppliers report they do not implement regulating reservoirs because these are not locally cost-effective.

- Solano ID and Turlock ID are evaluating implementation, but had previously found that they are not locally cost-effective at this time, however they do report implementation of canal lining or piping where appropriate.
- Belridge WSD, also reports that regulating reservoirs are not locally-cost effective and report that they have implemented canal lining where appropriate.
- Richvale ID reports no regulating reservoirs and no canal lining because canal seepage is minimal.

Six water suppliers report that regulating reservoirs are not applicable for a variety of reasons; two water suppliers are 100 % piped; one water supplier receives SWP water straight into a pressurized pipe system; two water suppliers report that flows are already sufficiently regulated by the Thermalino Afterbay; and, one water supplier reports that it has no distribution system beyond major project canals. All of these mechanisms are reported to sufficiently control flows in the districts.

One water supplier, Chowchilla ID, reported that is does not implement regulating reservoirs, but does implement the EWMP overall through canal lining or piping.

The remaining 13 agricultural water suppliers that submitted required plans did not address construction or implementation of regulatory reservoirs. Of these 13, six were accepted Reclamation plans, three were Ag Council plans that did not have to address regulatory reservoirs as part of this EWMP, and four were SB X7-7 plans that addressed this EWMP through canal lining and piping.

6 – Delivery Flexibility

This EWMP requires a water supplier to increase flexibility in ordering and delivering water to its customers within operational limits.

The benefit of implementing a delivery flexibility EWMP is that it allows a customer to better manage plant water needs with available supply. In addition, the supplier benefits because there is a more equitable distribution of water supply.

Responses to this EWMP include a supplier that operates their system similar to a M&I system and suppliers that require an notice for making changes in orders.

Of the 44 agricultural water suppliers that submitted required plans, 37 reported that they provide delivery flexibility to the extent that their system has the capability. Many suppliers reported that they achieved flexibility through some combination of the implementation of Supervisory Control and Data Acquisition (SCADA), systems such as for spill recovery, regulating reservoirs, improved water-ordering procedures, and improved communication between supplier personnel and customers that take water when they need it and for the duration required. System improvements can result in greater operational efficiency and reductions in spillage. Additionally, water quality benefits may occur through reduced tailwater outflow. Examples include:

- Rancho California WD reported that they operate an on-demand system similar to a M&I system.
- Western Canal WD provides a high degree of flexibility to customers by meeting change orders typically within the day of the request, always within 24 hours. They found that flexible water ordering and deliveries result in reduced operational spillage, tailwater, and in some cases, reduced seepage and deep percolation. Western estimates that by modernizing the entire system approximately 20 to 50 percent of existing operational spillage could be conserved annually, or between approximately 5,000 and 12,000 acre-feet per year.

Of the seven water suppliers that do not implement this EWMP, one supplier is investigating options (Arvin-Edison WSD), one supplier reports that deliveries are dictated by Red Bluff Dam (Colusa Co WD), one supplier reports that deliveries are based on arranged demand (Solano ID), and four submitted accepted Reclamation plans.

7 – Supplier Spill and Tailwater Capture Systems

This EWMP requires water suppliers to construct and operate spill and tailwater recovery systems. These systems are typically located at the end of a reach of conveyance canals or pipes and capture operational spill or tailwater returns. By having the capacity to capture operational spill, suppliers can enable more delivery flexibility to their customers and reduce system losses. Once captured, the water can then be delivered to other customers. Tailwater capture systems can enable customers to reuse water leaving their lands or allow for delivery to other customers. Spill and tailwater capture systems are frequently automated. Implementation of this EWMP ranges from full capture of all spills to a reduction in the amount of spill.

Of the 44 agricultural water suppliers submitting required plans, 25 report implementation of operational spill or tailwater recovery systems and six report this EWMP is fully implemented because they have no spills or a requirement not to spill. Supplier spill and tailwater capture systems were reported from suppliers throughout the Central Valley. For example:

The benefits of having spill and tailwater capture systems are that it enables delivery flexibility and by capturing spill and tailwater, water suppliers can increase the amount of water supply available for their customers. These systems require planning so that they are appropriately sized and operated for the amount of spill generated.

- Chowchilla ID reported that their spill was 30 AF out of a surface water supply of 118,396 AF.
- Buena Vista WSD and RD 108 report that their tailwater and spill capture systems save 31,910 AF/year.
- Alta ID reported that they have reduced spill by 1,500 acre-feet/year.
- Yuba County Water Agency reported that although they capture and reuse all of their spill, they do not know the total volume. Currently they are seeking funding to measure spill volume for reservoir planning purposes.
- San Benito Co. WD reports no spills because their system is fully piped.

Many other water suppliers reported that they have systems in place to capture spills and deliver it to other customers. Additionally, Richvale ID and Western Canal WD are evaluating additional opportunities to implement this EWMP. And, Modesto Irrigation District reported that at a cost of $115 million they could construct an operational outflow recovery system and could recycle an estimated 32,000 acre-feet of water annually. This water currently flows to local rivers and streams and is lost to the District.

Eleven of the 44 agricultural water suppliers that submitted required plans report that this EWMP is not applicable because they have no spill or spill is very minor in their service area. The distribution systems for three of these water suppliers, Delano Erlimart ID, San Benito Co. WD, and Shafter-Wasco ID, are fully piped.

The remaining two water suppliers submitted accepted Reclamation plans that did not address this EWMP.

8 – Conjunctive Use

This EWMP requires that a water supplier develop water management strategies to increase the conjunctive use of surface water and groundwater within the supplier service area. The groundwater may be pumped by either the supplier, and put into the supplier's conveyance system, or the landowner may directly pump and use the groundwater. Typically, a conjunctive system uses as much surface water as possible, relies on groundwater to augment surface water shortfalls, and has a groundwater recharge program in place. Implementation of this EWMP ranges from water suppliers that actively manage water conjunctively, to suppliers that do not have a formal program in place but have customers who alternate between groundwater and surface water.

The benefits of having a conjunctive use system is that it provides growers with an additional water supply source, better supply reliability, flexible water management practices, and it helps to maximize the use of surface water supplies.

Of the 44 agricultural water suppliers that submitted required plans, 36 reported that they implement conjunctive use within their service area. These suppliers are located throughout the Central Valley. Examples include:

- Four suppliers, on the west side of the San Joaquin Valley, do not have usable groundwater or a means of recharging groundwater, but practice a form of conjunctive use where they bank surface water with outside entities. These suppliers recover the banked water in dry years to supplement the surface water supplies.
- Oakdale ID is participating in a regional groundwater management process
- Solano ID reported that of the 23 deep wells owned and operated by the District, only one is not connected and conjunctively used by the surface distribution system.
- Tulare ID reported that during wet years excess water is used to recharge groundwater and most farmers have private wells.

Five agricultural water suppliers reported that they do not implement this EWMP. Of these five water suppliers, Colusa County and Orland-Artois WDs reported that they are investigating the implementation of a conjunctive use system; San Luis WD reports there is no currently accessible groundwater source; and, Panoche WD reports groundwater quality is poor and only used when insufficient surface water supplies are available.

The remaining three agricultural water suppliers submitted accepted Reclamation plans that did not address this EWMP.

9 – Automated Canal Controls

This EWMP requires water suppliers to automate canal controls. This may include automation of check structures, gates, and pumps. Although this EWMP is specific for canals, many suppliers reported on all automation that has been implemented. This may include the automation of regulating reservoirs, tailwater capture systems, recovery wells, and groundwater pumping.

Implementation of this EWMP ranges from districts with complete automation of delivery systems to suppliers that have automated portions of their canal systems or other supplier infrastructure. Many suppliers reported that they will automate their systems as funding becomes available.

Of the 44 agricultural water suppliers that submitted required plans, 24 water suppliers implement this EWMP. Seven of these water suppliers (Arvin-Edison WSD, Cawelo WD, North Kern WSD, Orange Cove ID, San Benito Co. WD, San Luis WD, and Wheeler Ridge-Maricopa WSD) reported that their systems are fully automated and seven reported that further implementation is planned or in progress or they are investigating additional opportunities.

The benefits of automated canal controls are that it enables a supplier to better manage water and to provide the customer with flexibility in delivery, reducing canal system spillage and allowing growers to more precisely control irrigation.

- Oakdale ID reported spending $4 million in recent years automating canal controls.
- Anderson-Cottonwood ID, Glen Colusa ID, and Madera ID reported that further automation will lead to savings of 10,590 AF per year to 81,645 AF per year. One of these three suppliers has applied for grant funding for their project.
- Richvale ID has found that automation results in reduced operational spillage and reduced deliveries due to increased delivery efficiency, which reduces on-farm tailwater and, in some cases, deep percolation. Reduced deliveries result in reduced diversions and corresponding reductions in spillage and drainage outflows. Available water not diverted remains in storage and can improve local supply reliability or could potentially be available for transfer.

Ten more agricultural water suppliers reported that they partially implement this EWMP with five of these water suppliers reporting it is not locally cost-effective to do more, however no cost-benefit analysis was provided. Additionally, the Tulare Lake Basin WSD reported that constructing additional automated structures is not applicable because it would not provide any improved water use efficiency to the existing efficient water management practices. This district operates on an arranged demand order-delivery system. Since the District is in a closed basin, individual Water Users manage all District operational spills or shortages by respectively storing excess amounts and delivering stored water from their extensive internal distribution systems when needed. The district believes the use of automated turnouts is unnecessary, given the present system has been refined over several decades and provides for efficient control of deliveries to the water users

Of the 44 agricultural water suppliers that submitted required plans, 10 water suppliers haven't addressed this EWMP or reported that they do not implement it. Three of these water suppliers

(Colusa Co WD, Delano-Erlimart ID, and Orland Artois WD) reported that this EWMP is not applicable because they have fully piped distribution systems. One of these water suppliers (Solano ID) reported that opportunities are being investigated. Another water supplier, South Sutter WD, reported that there would be no benefit to automating canal structures because after evaluation of spill site and facilities, it was determined that it was not economically justified. Three of these water suppliers reported in their accepted Reclamation plans that they did not implement this EWMP. The remaining two water suppliers did not address this EWMP in their accepted Reclamation plans.

10 – Facilitate or Promote Customer Pump Test/Evaluation

This EWMP requires a water supplier to facilitate or promote customer pump testing and evaluation. Regular pump testing and evaluation is an important tool for maintaining pump efficiency and performance.

The benefits of pump testing are that it provides information on the efficient use of energy and ensures that equipment does not prematurely fail. Growers can use this information to make pump and well repairs to increase pump efficiency and decrease pump energy use.

Of the 44 agricultural water suppliers that submitted required plans, 34 water suppliers reported that they either promote pump testing by energy companies or provide the service to their customers. The majority of these suppliers implement this EWMP by providing information about the importance of pump testing and pump testing assistance offered by various utilities or agencies.

Three of the water suppliers reported that this EWMP was not applicable. Biggs-West Gridley WD reported that it required flowmeters on private groundwater pumps that pump water into the distribution system during shortage years, which, in turn, already enables evaluation of pump performance. The other two water suppliers, Cawelo WD and Wheeler Ridge-Maricopa WSD, appear to have misinterpreted this EWMP and just reported that pump tests were performed by utilities so no further action was required.

The remaining seven water suppliers submitted Ag Council plans or accepted Reclamation plans that did not address this EWMP.

11 – Water Conservation Coordinator

This EWMP requires water suppliers to designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

The benefit of designating a water conservation coordinator is that the suppliers' customers will have a single point of contact for water conservation activities.

Of the 44 agricultural water suppliers required to submit plans, 38 water suppliers reported that they have water conservation coordinators. Two more water suppliers, Buena Vista WSD and North Kern WSD, reported that they are committed to finding a coordinator in the next five years. The remaining four water suppliers submitted accepted Reclamation plans that did not address this EWMP.

12 – Water Management Services to Customers

This EWMP requires water suppliers to provide for the availability of water management services to water users. These services may include, but are not limited to, the following:

- On-farm irrigation and drainage evaluations,
- Normal year and real-time irrigation scheduling and crop evapotranspiration information,
- Surface water, groundwater, and drainage water quantity and quality data, and
- Agricultural water management educational programs and materials for farmers, staff, and the public.

The benefits of water management services to customers include making better water management decisions through the use of information, such as weather data, water quality data, educational materials, and on-farm irrigation and drainage evaluations.

Of the 44 agricultural water suppliers that submitted a required plan, 41 water suppliers reported that they provide some type of water management service to their customers. The most common programs reported include irrigation system evaluations, California Irrigation Management Information System (CIMIS) data, historical field-level water use data, and educational workshops and newsletters. The remaining three water suppliers submitted accepted Reclamation plans and were not required to address this EWMP.

13 – Identify Institutional Changes

This EWMP requires water suppliers to evaluate the policy of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

The benefits of identifying institutional changes include more efficient water management strategies and planning.

Of the 44 agricultural water suppliers that submitted a required plan,
36 water suppliers reported that they have identified policies to discuss with other agencies. Issues range from better coordination to achieve more flexible deliveries from Reclamation or DWR, to working with fish agencies to better manage reservoir operations. For example:

- Berrenda-Mesa WD reported that it is coordinating with a groundwater bank to enhance their conjunctive use operations.
- Oakdale ID reported that it is discussing carry-over storage opportunities with Reclamation.
- San Benito Co. WD reported no policies were identified that needed changes

The remaining eight agricultural water suppliers submitted accepted Reclamation plans that did not address this EWMP or this EWMP was reported as not implemented. For example, Tulare ID only evaluates policies if there is a landowner complaint.

14 – Supplier Improved Pump Efficiency

This EWMP requires water suppliers to evaluate and improve the efficiencies of their pumps.

The benefits of supplier improved pump efficiency include lower energy costs and water efficiency.

Of the 44 agricultural water suppliers that submitted a required plan, 31 water suppliers reported that they have a program to evaluate and improve their pumps' efficiency. Some of these suppliers use agency personnel, while others contract for the service.

Ten agricultural water suppliers reported that they do not implement this EWMP. Seven of these water suppliers reported that they do not own or operate pumps therefore this EWMP is not applicable. Shafter-Wasco ID reports that is only has two small lift pumps and this EWMP is therefore not applicable. Two of these water suppliers (Orland-Artois WD and Colusa Co. WD) are planning a program; Orland-Artois WD is reviewing the implementation of the supplier-improved pump efficiency and has created a maintenance reserve account in the event that they proceed with the EWMP.

The remaining three agricultural water suppliers submitted accepted Reclamation plans that did not address this EWMP.

Overview of EWMP Reporting in 2012 AWMPs

Table 3 below, illustrates the reported or planned implementation of EWMPs in the 2012 AWMPs. Table 3 includes 19 agricultural water suppliers that submitted required SB X7-7 plans in accordance with Water Code Section 10826 and three agricultural water suppliers that submitted required plans in accordance with Water Code Section 10827 (Assembly Bill 3616 Ag Council plans).

Table 4 below, illustrates the reported or planned implementation of EWMPs for Reclamation Plans submitted in accordance with Water Code Section 10828. These are included in a separate table because they are not subject to State EWMPs but rather BMPs as developed by Reclamation. (See Appendix B for comparison of California Water Code and Reclamation requirements in this regard.)

Most Table 3 AWMPs did not provide the estimated water savings or the estimated water use efficiency improvements from implementing EWMPs per Water Code Section 10608.48(d). The AWMP could either provide a quantification or qualification description of estimated savings.

Table 3: Efficient Water Management Practices (EWMP) Implementation for SB X7-7 and Ag Council Plans representing 22 water suppliers

	Number of Agricultural Water Suppliers			
EWMP	**Implemented**	**Planned**	**Technically Infeasible***	**Estimated Water Savings**
Critical				
Water Measurement	17	5		
Volume-Based Pricing	15	7		
Conditional				
Alternate Land Use	8		14	
Recycled Water Use	9	2	11	2
On-Farm Capital Improvements	17		5	1
Incentive Pricing Structure	18		4	1
Infrastructure Improvements	19		3	3
Order/Delivery Flexibility	22			1
Supplier Spill & Tailwater Systems	17		5	2
Conjunctive Use	21		1	2
Automated Canal Controls	20		2	1
Customer Pump Test & Evaluation**	15		1	1
Conservation Coordinator	22			1
Water Management Services to Customer	22			1
Identify Institutional Changes	22			1
Supplier Improved Pump Efficiency	16		6	1

*No water suppliers opted out of implementing an EWMP due to not being locally cost effective
** Water Code Section 10827 plans (Ag Council) did not have to address this EWMP (two suppliers), two suppliers did not implement because of what appears to be a misunderstanding of the EWMP, one supplier converted from Ag Council plan to Water Code Section 10826 plan and appears to have missed this one.

"Implemented" are the number of water suppliers that implemented each of the individual EWMPs listed to the left.
"Planned" are the number of water suppliers where each of the individual EWMPs are in the planning stage and will be implemented in the near future.
"Technically infeasible" are the numbers of water suppliers where each of the individual EWMPs are not feasibly implemented due to technical reasons.
"Estimated Water Savings" are the number of water suppliers that included an estimated water savings per EWMP in AF per year.

Table 4: Efficient Water Management Practices (EWMP) Implementation for Reclamation Water Conservation Plans Pursuant to Water Code §10828 representing 22 water suppliers

	Number of Agricultural Water Suppliers			
EWMP	**Implemented**	**Planned**	**Not Applicable/ Appropriate**	**Omitted***
Critical				
Water Measurement	18	4		
Volume-Based Pricing	18	3		1
Conditional				
Facilitate Alternate Land Use	6		12	4
Recycled Water Use	3	4	11	4
Facilitate On-Farm Capital Improvements	17	1		4
Incentive Pricing Structure	15	2	2	3
Infrastructure Improvements	19		1	2
Order/Delivery Flexibility	15		2	4
Supplier Spill & Tailwater Systems	13		6	3
Conjunctive Use	15	2	2	3
Automated Canal Controls	14	1	5	2
Facilitate or Promote Customer Pump Test & Evaluation	18			3
Conservation Coordinator	18	1		3
Water Management Services to Customer	19			3
Identify Institutional Changes	14		5	3
Supplier Improved Pump Efficiency	15	2	2	3

*Three Reclamation plans are not subject to all Reclamation BMPs. Other suppliers omitted this EWMP, but submitted accepted Reclamation plans and were therefore compliant with SB X7-7.

"Implemented" are the number of water suppliers that implemented each of the individual EWMPs listed to the left.
"Planned" are the number of water suppliers where the individual EWMPs are in the planning stage and will be implemented in the near future.
"Not Applicable/Appropriate" are the numbers of water suppliers where the individual EWMP is not feasibly implemented for a variety of reasons.
"Omitted" are the number of water suppliers that did not address the individual EWMP.

Examples of Outstanding EWMPs

In the AWMP under SB X7-7, agricultural water suppliers are required to describe certain elements, EWMPs or content, such as service area, the quantity and quality of water resources, an analysis on the effect of climate change, and previous water management activities' water use information regarding EWMPs[18]. While the legislation does not provide much detail when describing this content, some agricultural water districts provided outstanding examples.

While many of these projects have resulted in more efficient water use by suppliers, water use savings from many of these improvements have not been quantified. DWR has reminded water suppliers by letter that they will provide additional information as to the estimated water use efficiency improvements in the next AWMP update in 2015.

- Water Measurement: Westlands WD and Rancho California WD are fully metered.
- Volume-Based Pricing: Alta ID began volumetric pricing more than a decade ago after its own cost-of-service studies found that large water demands had imposed disproportionately higher costs on the system. Turlock ID's Board approved a new volumetric rate structure on June 12, 2012, and began applying it in 2013.
- Water Savings: Over five to ten years, Rancho California WD expects annual water savings of 3,586 AF from recycled water, 4,521 AF from infrastructure improvements, and 25,000 AF from conjunctive use, for a total of 33,107 AF. Merced ID found that on-farm capital improvement, incentive pricing structure, order/delivery flexibility, customer pump testing, a water conservation coordinator, and water management services to customers resulted in less applied water. North Kern WSD found that an estimated 8,165 AF was saved from lining portions of Calloway Canal and converting some canals to pipeline reduced seepage. They also found 500 AF savings when they implemented SCADA monitoring to check water levels at strategic locations in the District's distribution system to prevent overflow of regulating reservoir storage.

The Effect of EWMPs on Agricultural Operations

Estimating the effect of EWMPs on water use and operations is complex. Effects of the EWMPs must be separated from other effects such as weather, farm prices, and water supply restrictions. However, based on historical information, it is accepted in the agricultural community that the implementation of EWMPs improves efficiency and conserves water. Estimates to quantify improvements may be feasible in the future when more historical data are available and EWMPs have been implemented, assessed and reported over time by more suppliers.

Agricultural water suppliers continue to implement numerous projects to improve the efficiency of their water operations and water use. While many of these projects have resulted in more efficient water use by suppliers, water use savings from many of these improvements have not been quantified at this time. See Table 3.

[18] Water Code §10845(b)

DWR has reminded water suppliers by letter that they need to evaluate results of the implementation of the various EWMPs described above and DWR will provide additional information as to the estimated water use efficiency improvements in the next AWMP update in 2015. Any evaluation of the effectiveness of SB X7-7 requirements to promote water conservation practices must be partly based on the history of suppliers' initiatives to conserve water and improve efficiency. Historically, water suppliers and growers implemented improved water management practices to increase crop productivity and reduce costs. These activities would most likely continue. However, agricultural water management can benefit from planning requirements imposed by legislation such as AB 3616 and SB X7-7. These planning requirements encourage suppliers to evaluate activities that may not directly benefit their operations but are considered valuable from a regional or statewide perspective. Given these considerations, SB X7-7 planning requirements can be considered effective in promoting efficient agricultural water management. Many agricultural water suppliers have and continue to implement numerous projects to improve the efficiency of their water operations and water use.

Section 6: Recommendations

Recommendations for Legislative Changes

DWR and the agricultural water supplier community have learned a lot from this first cycle of SB X7-7 AWMP submittals and are working together to make improvements in the process for the 2015 cycle of AWMP submittals. At this time, DWR has no recommendations for legislative changes related to AWMPs or EWMPs. After the 2015 AWMPs have been received and reviewed, and after DWR has implemented the AWMP guidance improvements recommended below, DWR will evaluate the AWMP and EWMP content and reporting process and will include any legislative recommendations in the 2016 AWMP report to the Legislature.

Future DWR Actions Related to Agricultural Water Management Plans

DWR will continue to consult with the Agricultural Stakeholder Committee (ASC) and other interested parties and will:

- Continue to conduct public meetings on how to make the plan submittal process for the water suppliers more efficient in order to increase compliance rate.
- Continue to post plans in an online clearinghouse at: http://www.water.ca.gov/wateruseefficiency/ and update the website regularly.
- Continue to administer any available State grant funds, which are critical in assisting eligible water suppliers implement the AWMPs and EWMPs. DWR will work to encourage that funds be provided.
- Work with Reclamation to align their agricultural water management plans with DWRs.
- Identify additional water suppliers who may be required to submit AWMPs.

Future DWR Actions Related to Efficient Water Management Practices

SB X7-7 directs DWR to consider updates to the EWMPs[19]. In 2013, DWR, working with the ASC, completed an initial evaluation of EWMP requirements and implementation. Based on that initial evaluation, DWR did not see an immediate need to update the EWMPs at that time.

- DWR will work with stakeholders, including the ASC, academia, the State Water Resource Control Board, Reclamation, and other agencies to determine if an additional study or evaluation for the purpose of updating the EWMPs is needed. If deemed necessary, a "design team" of stakeholders will prepare the scope of the proposed study or evaluation. Once the study or evaluation is completed, if it is determined that the EWMPs need to be updated, DWR would either proceed with the update through the Administrative Procedures Act (APA) rulemaking process, or recommend that the legislature amend the law.
- DWR will include language and provide guidance in the revised AWMP Guidebook that describes how to better report the quantification of water savings and estimates of water use efficiency improvements occurring from the implementation of past, current, and planned EWMPs.
- DWR will continue to provide technical assistance in water management plan development and the implementation of EWMPs and for determining local cost effectiveness and technical feasibility.
- DWR will, as funding permits, promote research and development of additional EWMPs and new technologies and management strategies that promote water use efficiency and conservation.

[19] Water Code §10608.48(h)

Section 7: References

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Section 8: Appendices

Appendix A: Text of the California Water Code Pertaining to Agricultural Water Management Plans

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 fi ve 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.

Water Code Section 10608.48

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.

Appendix B: Detailed Comparison of the SB X7-7 (Water Code), 1999 AWMC MOU and Reclamation CVPIA/RRA Processes

	Water Code	1999 AWMC-MOU	Reclamation CVPIA/RRA
1	Not Required (N/R)	Step 1: Coordinate with other agencies and the public	N/R
2	**§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:	Step 2: Describe the water supplier	**Section 1** Description of the District
3	(1) Size of the service area.	A. History and size	**Section 1A** History
4	(2) Location of the service area and its water management facilities	B. Location and facilities	**Section 1B** Location and facilities
5	(3) Terrain and soils	C. Terrain and soils	**Section 1C** Topography and Soils
6	(4) Climate	D. Climate	**Section 1D** Climate
7	N/R	N/R	**Section 1E** Natural and Cultural Resources
8	(5) Operating rules and regulations	E. Operating rules and regulations	**Section 1F** Operating Rules and Regulations
9	(6) Water delivery measurements or calculations	F. Water delivery measurement or calculations	**Section 1G** Water Measurement, Pricing and Billing
10	(7) Water rate schedules and billing	G. Water rate schedules and billing	**Section 1G** Water Measurement, Pricing and Billing
11	(8) Water shortage allocation policies	H. Water shortage allocation policies	**Section 1H** Water Shortage Allocation Policies
12	(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:	Step 3: Inventory water resources	**Section 2** Inventory water resources
13	(1) Surface water supply	A. Surface water supply	**Section 2A** Surface Water Supply
14	(2) Groundwater supply	B. Groundwater supply	**Section 2B** Groundwater Supply
15	(3) Other water supplies	C. Other water supplies	**Section 2C** Other Water Supplies
16	(4) Source water quality monitoring practices	D. Source water quality monitoring practices	**Section 2D** Source Water Quality Monitoring Practices
17	(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	**Section 2E** Water Uses with the District
18	(A) Agricultural	1. Agricultural	**Section 2E1** Agricultural
19	(B) Environmental	2. Environmental	N/R
20	(C) Recreational	3. Recreational	**N/R**
21	(D) Municipal and industrial	4. Municipal and industrial	**Section 2E2** Urban
22	(E) Groundwater recharge	5. Groundwater recharge	**Section 2E3** Groundwater Management Plan/Banking Programs
23	(F) Transfers and exchanges	6. Transfers and exchanges	**Section 2E4** Transfers, Exchanges, Rescheduling,

	Water Code	1999 AWMC-MOU	Reclamation CVPIA/RRA
			Purchases, or Sales
24	(G) Other water uses	7. Other water uses	**Section 2E5** Other
25	(6) Drainage from the water supplier's service area	F. Drainage from the water supplier service area	**Section 2F** Outflow from the District
26	(7) Water accounting, including all of the following:	G. Water accounting	**Section 2G** Water Accounting
27	(A) Quantifying the water supplier's water supplies	1. Quantify water supplier's water supplies	**Section 2G1** Quantify Contractor's Water Supplies
28	(B) Tabulating water uses	2. Tabulate water uses	**Section 2G2** Quantify Water Used
29	(C) Overall water budget	3. Overall water budget	**Section 2G3** Overall Water Budget
30	(8) Water supply reliability	H. Supply reliability	**N/R**
31	(c) Include an analysis, based on available information, of the effect of climate change on future water supplies	**N/R**	**N/R**
32	(d) Describe previous water management activities	**N/R**	**N/R**
33	(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48	Step 5: Identify efficient water management practices	**Section 3A** Critical BMPs for Agricultural Contractors
34	**§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:	Step 8: Implement justified efficient water management practices	**Section 3A** Critical BMPs for Agricultural Contractors
35	**Chapter 3, Article 1, §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.	**Exhibit A, List A** 1. Prepare and adopt a Water Management Plan using as a guideline Exhibit B of this Memorandum of Understanding for Agricultural Water Suppliers	**Section 210 of Reclamation Reform Act of 1982 (RRA); Central Valley Project Improvement Act of 1992 (Public Law 102-575)** Requires federal contractors to prepare and submit plans every 5 years
36	**§10608.48 (a)(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)	**Exhibit A, List C** 1. Water measurement and water use report.	**Section 3A1** Water Measurement
37	(2) Adopt a pricing structure for water customers based at least in part on quantity delivered	2. Pricing or other incentives.	**Section 3A4** Pricing Structure
38	(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to	(see below)	**Section 3B** Exemptible BMPs for Agricultural Contractors

	Water Code	1999 AWMC-MOU	Reclamation CVPIA/RRA
	accomplish all of the following, if the measures are locally cost effective and technically feasible:		
39	(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage	**Exhibit A, List B** 1. Facilitate alternative land use	**Section 3B1** 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.	**Section 3B2** 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.	**Section 3B3** Facilitate the Financing of Capital Improvements for On-Farm Irrigation Systems.
42	**N/A**	4. Facilitate voluntary water transfers that do not unreasonably affect the water user, water supplier, the environment, or third parties.	**N/R**
43	(4) Implement an incentive pricing structure that promotes one or more of the following goals:	**Exhibit A, List C** 2. Pricing or other incentives.	**Section 3B4** 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.	**N/R**
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.	**Section 3B9** Optimize Conjunctive Use
46	(C) Appropriate increase of groundwater recharge	(see above)	(see above)
47	(D) Reduction in problem drainage	**N/R**	**N/R**
48	(E) Improved management of environmental resources	**N/R**	**N/R**
49	(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions	**N/R**	**N/R**
50	(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce	**Exhibit A, List B** 5. Line pipe ditches and canals. (in part)	**N/R**

	Water Code	1999 AWMC-MOU	Reclamation CVPIA/RRA
	seepage		
51	(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits	**Exhibit A, List B** 6. Increase flexibility in water ordering by, and delivery to, the water users within operational limits.	**Section 3B6** 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.	**Section 3B7** Construct and Operate Spill and Tailwater Recovery Systems
53	**N/R**	**N/R**	**Section 3B8** 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.	**Section 3B9** Optimize Conjunctive Use
55	(9) Automate canal control structures.	9. Automate canal structures.	**Section 3B10** Automate Distribution and/or Drainage System Structures
56	(10) Facilitate or promote customer pump testing and evaluation	**N/R**	**Section 3B11** Facilitate or Promote Water User Pump Testing and Evaluation
57	**N/R**	**N/R**	**Section 3B12** Mapping (GIS)
58	(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports	**Exhibit A, List A** 2. Designate a Water Conservation Coordinator	**Section 3A2** 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)	**Section 3A3** Provide or Support the Availability of Water Management Services to Water Users
60	(A) On-farm irrigation and drainage system evaluations	**Exhibit A, List A** 3a. On-farm irrigation and drainage system evaluation	**Section 3A3a** 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	**Section 3A3b** 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.	**Section 3A3c** 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	**Section 3A3d** Agricultural water management educational programs and material for farmers and staff, and the public.
64	**N/R**	4. Where appropriate, improve communication and cooperation among water suppliers, water users, and other agencies.	**N/R**
65	(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more	**Exhibit A, List A** 5. Evaluate the need, if any, for changes in policies of the institutions to which the water supplier is subject.	**Section 1I** Evaluate Polices of Regulatory Agencies Affecting the Contractor and Identify Policies that Inhibit Good Water Management

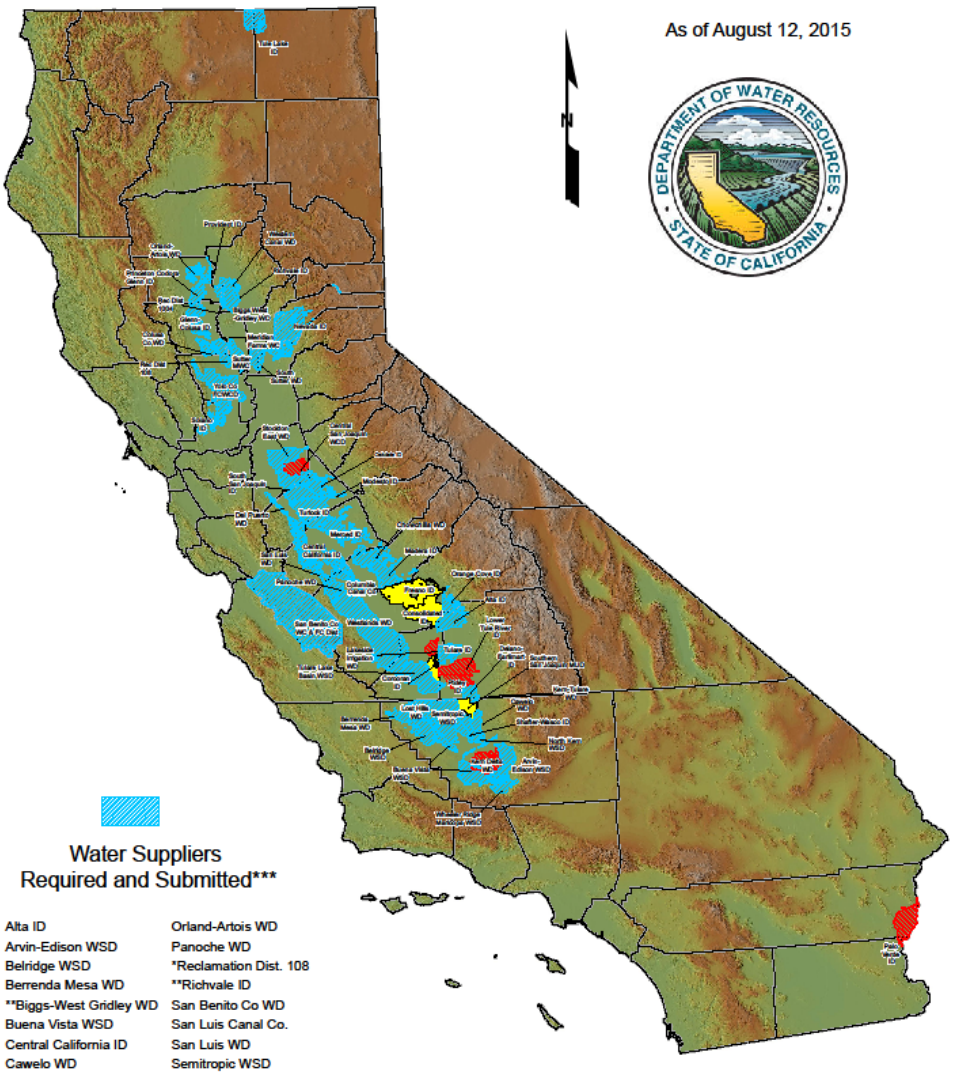
	Water Code	1999 AWMC-MOU	Reclamation CVPIA/RRA
	flexible water deliveries and storage		
66	(14) Evaluate and improve the efficiencies of the supplier's pumps.	**Exhibit A, List A** 3e. Water user pump testing and evaluation. 6. Evaluate and improve efficiencies of water suppliers' pumps.	**Section 3A5** Evaluate and Improve Efficiencies of Contractor's Pumps
67	**N/R**	Step 6: Develop schedules, budgets, and projected results	**N/R**
68	**§10608(d)** 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.	**Exhibit E** "Net Benefit Analysis for EWMPs by Agricultural Water Suppliers", for evaluating which of the EWMPs is appropriate for their service area.	**Section 3B Exemptible BMPs for Agricultural Contractors** 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	**§10608(e)** The data shall be reported using a standardized form developed pursuant to §10608.52	**N/R**	**N/R**
70	**§10841 (Plan Review)** 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	Step 7: Review, evaluate, and adopt the water management plan	Reclamation releases the plans for public comment after they are received from the water supplier and deemed adequate.
71	**N/R**	Step 9: Monitor, evaluate, and update the water management plan	**N/R**
	§10608.48(g) on or before December 31, 2013, and December	**N/R**	**N/R –** No Congressional report required.

	Water Code	1999 AWMC-MOU	Reclamation CVPIA/RRA
72	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. **§10845** 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.		A **Ten-year** progress report was issued in 2004 for years 1993-2002, and covered all aspects of CVPIA.
73	**§10608.56** 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**	**Consequences of Non-Compliance (2011 Standard Criteria)** 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.

Appendix C: Agricultural Water Supplier Map of AWMP Status

Agricultural Water Management Plan Compliance

As of August 12, 2015



Water Suppliers Required and Submitted***

Alta ID
Arvin-Edison WSD
Belridge WSD
Berrenda Mesa WD
**Biggs-West Gridley WD
Buena Vista WSD
Central California ID
Cawelo WD
Chowchilla WD
Colusa Co WD
Delano-Earlimart ID
Del Puerto WD
*Glenn-Colusa ID
Laguna ID
Lost Hills WD
Madera ID
Merced ID
Modesto ID
Nevada ID
North Kern WSD
Oakdale ID
Orange Cove ID
Orland-Artois WD
Panoche WD
*Reclamation Dist. 108
**Richvale ID
San Benito Co WD
San Luis Canal Co.
San Luis WD
Semitropic WSD
Shafter-Wasco ID
Solano ID
South San Joaquin ID
South Sutter WD
Stockton-East WD
*Sutter Mutual WC
Tulare ID
Tulare Lake Basin WD
Tule Lake ID
Turlock ID
**Western Canal WD
Westlands WD
Wheeler Ridge-Maricopa WSD
Yolo Co FCWCD

Water Suppliers Required, Not Submitted

Central San Joaquin WCD
Kern Delta WD
Lakeside Irrigation WD
Lower Tule River ID
Palo Verde ID
Pixley ID

Water Suppliers Required, In progress

Consolidated ID
Corcoran ID
Fresno ID
Southern San Joaquin MUD (waiting USBR approval)

* These water districts are included in the Sacramento Valley Regional Plan
** These water districts are included in the Feather River Regional Plan

*** Additionaly, there are 21 Water Suppliers who were not required to submit plans but did so anyway. These are not included in this map.