

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

Submittal of 2015 Agricultural Water Management Plans and Implementation of Efficient Water Management Practices Report

A report to the Legislature pursuant to California Water Code
Sections 10845(a) & (b) and 10608.48(g)
and Executive Order B-29-15



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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) or Plan
BMP	Best Management Practice(s)
CIMIS	California Irrigation Management Information System
Criteria	United States Bureau of Reclamation Mid-Pacific Region, 2014 Standard Criteria
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act of 1992
CWC, WC or Water Code	California Water Code
DWR	Department of Water Resources
EO Agencies	DWR, State Water Resources Control Board, California Energy Commission, California Department of Food and Agriculture, and California Public Utilities Commission
EWMP	Efficient Water Management Practice(s)
Guidebook	A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2015 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 or USBR	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
WC	California 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 (AWMPs or Plans) to the Department of Water Resources (DWR) and to implement Efficient Water Management Practices (EWMPs), including two critical EWMPs: the measurement and volumetric pricing of water deliveries. These AWMPs were due by January 31, 2016. Governor Brown's Executive Order B-29-15 required agricultural water suppliers that provide water from 10,000 to 25,000 irrigated acres to submit AWMPs by July 1, 2016.

California Water Code (CWC) §10845(a) and (b) directs DWR to report on the following:

- The status of adopted AWMPs
- Exemplary elements of adopted plans
- An evaluation of the effectiveness of implemented AWMPs in promoting efficient agricultural water management practices
- Recommendations relating to proposed changes to the AWMP reporting requirements and EWMPs

Additionally, CWC section 10608.48(g) directs DWR in consultation with the State Water Resources Control Board (SWRCB) to prepare and submit to the Legislature a report on:

- EWMPs that have been implemented or are planned to be implemented, and
- An assessment of the manner in which the implementation of an EWMP has affected and will affect agricultural operations and an estimation of water use efficiency improvements, if any.

This legislative report addresses the above requirements in a single report and documents the status of AWMP submittals and the implementation of associated EWMPs or best management practices (BMPs) for those water suppliers submitting a United States Bureau of Reclamation (Reclamation) plan in lieu of a plan meeting SB X7-7 criteria.¹ A table comparing the SB X7-7 EWMPs and Reclamation BMPs is in Appendix B.

Further information on SB X7-7 requirements and legislative reports are available at <http://www.water.ca.gov/wateruseefficiency/sb7/>.

¹ The United States Bureau of Reclamation plans can be submitted to DWR to meet SB X7-7 AWMP requirements. These plans include BMPs instead of EWMPs. Once they are accepted by Reclamation, DWR will accept them. Reclamation's BMPs are not summarized in this report but are accounted for in the summary of the EWMPs in Section 6 when they are applicable to the corresponding EWMP.

Status of Agricultural Water Management Plans Adopted Pursuant to Senate Bill X7-7 and Governor’s Executive Order B-29-15

As of August 8, 2017, DWR has received Agricultural Water Management Plans (AWMPs) from 69 agricultural water suppliers that supply water to more than 10,000 acres each. These plans represent approximately four million acres or roughly 50 percent of California’s 8.13 million acres of irrigated land as estimated in the California Water Plan Update 2013.

All of the agricultural water suppliers that submitted adopted plans reported compliance with the requirements of the Water Code as summarized in Sections 4 and 5. A list of suppliers who submitted AWMPs is provided in Tables 2a and 2b.

Status of 2015 AWMP Submittals

Supplier Size	Plan Type	Required to Submit	Submitted Individual or Regional Plans	Irrigated Acres Covered	% Compliance
>25,000 irrigated acres	SB X7-7	26	23	1,769,071	88%
	Reclamation	29	21	2,020,536	69%
	Subtotal	55	44	3,789,607	80%
10,000 -25,000 irrigated acres	SB X7-7	17	13	183,016	76%
	Reclamation	21	12	216,389	57%
	Subtotal	38	25	399,405	66%
Total		93	69	4,189,012	74%

This information is summarized in greater detail in Section 4, Tables 2a and 2b.

Examples of Exemplary Plan Contents

In the AWMP under SB X7-7, agricultural water suppliers are required to describe certain elements or content, including descriptions of service area, the quantity and quality of water resources, an analysis on the effect of climate change, previous water management implementation activities and water use efficiency information regarding EWMPs². Section 4 of this report highlights two exemplary regional AWMPs.

Effectiveness of AWMPs in Promoting Efficient Agricultural Water Management Practices

Agricultural water management 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, as further described in Section 5 of this report.

Implementation of SB X7-7 Efficient Water Management Practices

SB X7-7, as well as Reclamation and Assembly Bill (AB) 3616, require water suppliers to describe the implementation of 16 EWMPs, or equivalent BMPs in Reclamation plans, 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. Each of the EWMPs is described in Section 5 in more detail.

Submitted AWMPs show a high rate of implementation among large suppliers for the two critical EWMPs (above 85%). Those large suppliers who have not yet implemented EWMPs have plans for future compliance. Unlike large suppliers, the mid-sized suppliers are not required to implement EWMPs. Nevertheless, their rate of implementation of the critical EWMPs ranges from 65% and 75% as reported in SB X7-7 and Reclamation plans, respectively.

Among large suppliers, the rate of adoption and implementation of conditional EWMPs varies considerably. Some conditional EWMPs are being implemented at a very high rate (above 90% to full implementation) such as: 'Water Conservation Coordinator', 'Water Management Services to Customers', and 'Supplier Spill & Tailwater Systems'. Conditional EWMPs that were adopted sparingly and were reported as infeasible by a number of suppliers include 'facilitating Alternate Land Use' and 'Recycled Water Use'.

Tables 4a, 4b, 5a and 5b in Section 5 provide specific information on EWMP/BMP and planned EWMP/BMP implementation.

²Water Code 10825

EWMP Effectiveness in Improving Water Use Efficiency in Agricultural Operations

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 Tables 4a, 4b, 5a and 5b in Section 5). Estimating the effect of EWMPs on water use and operations is complex. Effects of the EWMPs must be separated from other effects due, for example, to weather, farm prices, and water supply restrictions. 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.

In addition, as noted below, recommendations made by DWR and other State Agencies in the April 2017 Report to the Governor and Legislature, “Making Water Conservation a California Way of Life” propose a new “water budget” based AWMP framework. This would also help quantify EWMP effectiveness and improve estimates of water use efficiency improvements. Upon statutory authorization, the new framework along with proper tools and resources will assist agricultural water suppliers in quantifying various components of their overall water budget, prioritize EWMP implementation, and thus, better estimate the associated water use efficiency improvements.

Recommendations for Legislative Changes

On May 9, 2016 the Governor issued Executive Order B-37-16 that aims to bolster California’s climate and drought resilience. Built on the temporary statewide emergency water restrictions, this Executive Order directed five State agencies (DWR, State Water Resources Control Board, California Energy Commission, California Department of Food and Agriculture and California Public Utilities Commission, collectively, the EO Agencies) to establish a long-term water conservation framework that will enhance the resiliency of California communities as a whole against climate and drought. The resulting framework is part of the broader, multi-faceted implementation of the California Water Action Plan.

The EO Agencies prepared a report to the Governor’s Office, Legislature, and the public to summarize their individual and collective implementation actions of, and recommendations for, all items contained in Executive Order B-37-16 to achieve the goal of making conservation a way of life in California. The State agencies released a report in April 2017 titled “Making Water Conservation a California Way of Life” proposing legislative changes to improve water use efficiency and drought preparedness. The report recommends that agricultural water suppliers calculate and include in their AWMP annual water budgets and the efficiency of water use for their service area. The water budget data will be useful to groundwater sustainability agencies in calculating water budgets for their basins as required by the Sustainable Groundwater Management Act. The report also recommends that the submittal threshold for AWMPs be lowered to 10,000 irrigated acres. The report was developed with advice and guidance from an agricultural stakeholder advisory group.

Section 1: Introduction

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 agricultural water suppliers.

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 loans and grants is contingent upon compliance with SB X7-7 requirements.

This report is submitted to the Legislature to comply with requirements of SB X7-7, the Water Conservation Act of 2009, pertaining to Agricultural Water Management Plans (AWMPs) and Efficient Water Management Practices (EWMPs).³ This report covers the AWMPs submitted through early August 2017, and the EWMPs that are reported within those plans. DWR also accepts United States Bureau of Reclamation's (Reclamation) plans as meeting the requirements of SB X7-7 AWMP reporting. Those plans include best management practices (BMPs) instead of EWMPs which are accepted by both Reclamation and DWR. A table comparing the SB X7-7 EWMPs and Reclamation's BMPs can be found in Appendix B.

The portion of this report on EWMPs and BMPs 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 AWMPs and EWMP content as described in SB X7-7 and provides a summary of the EWMPs and outstanding AWMP content submitted in those plans.

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 Water Conservation Plans in lieu of plans addressing the SB X7-7 requirements.

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 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 of 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 2014 Standard Criteria⁴ (Criteria) developed by Reclamation requires CVP contractors to revise their agricultural water management plans every five years and submit annual implementation updates. These Criteria apply to all Reclamation contractors that irrigate 2,000 or more acres, but do not apply to the Sacramento Valley Settlement Contractors. Instead, they implement “CALFED Targeted Benefits”.

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, 2014 Standard Criteria. 2014

State of California 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 supplier 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 largest agricultural water suppliers in California. The suppliers 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.

Efficient Water Management Practices Act of 1990 (AB 3616)

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 Agricultural Water Management Council (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 RRA and CVPIA programs were mandatory.

Plans submitted to the Ag Council were reviewed both by 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 the passage of SB X7-7 and the adoption of State mandated water management planning, the Ag Council's role in promoting voluntary efforts was no longer needed. Therefore, no Ag Council plans were submitted to DWR during the 2015 planning cycle.

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

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 year⁵. As a matter of policy, DWR requires that any recipients of State grants or loans be in compliance with this law.

Water Conservation Act of 2009 (SB- X7-7)

CWC §10608.48 and SB X7-7 required agricultural water suppliers with greater than 25,000 irrigated acres, excluding recycled water, to implement EWMPs including the measurement and volumetric pricing of water deliveries by July 31, 2012, and to adopt and submit AWMPs with specific content to DWR 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 (CWC §10820).

Agricultural water suppliers that provide water from 10,000 up to 25,000 irrigated acres, excluding recycled water, were required to prepare and submit plans by July 31, 2016, per Governor Brown's Executive Order B-29-15.

SB X7-7 permits water suppliers that are contractors under RRA or CVPIA requirements 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 55 suppliers that DWR estimates are required to submit plans, 29 are Reclamation (RRA, CVPIA) contractors.

Previously, suppliers who were Ag Council members were able to submit approved Ag Council plans in lieu of plans with the SB X7-7 elements. With the dissolution of the Ag Council in March of 2013, the submittal of Ag Council plans was not an option beginning in the 2015 AWMP update or future updates.

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 water suppliers met the requirements of SB X7-7. Contents included in the AWMPs are:

- Description of the service area and infrastructure
- Description of the quantity and quality of water resources
- Description of water uses
- Establishment of a water budget
- Description of previous and planned implementation of EWMPs
- 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>

SB X7-7 Efficient Water Management Practices Requirements

SB X7-7, as well as Reclamation and AB 3616, require 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. It 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 conditions⁶. 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).

California's Drought Proclamation and Executive Order B-29-15

In 2013, 2014, and 2015, the State experienced exceptionally dry conditions. Parts of the Central Valley and Southern California experienced extreme drought conditions. Precipitation in some areas of the state dropped to their lowest point since recordkeeping began in the 1800s. Statewide reservoir storage was down significantly and impacts of two, going on three, dry years in a row was felt everywhere.

On Jan. 17, 2014, with California facing water shortfalls in the driest year in recorded state history, Governor Edmund G. Brown Jr. proclaimed a State of Emergency Executive Order and directed State officials to take all necessary actions to prepare for these drought conditions. In the State of Emergency declaration, Governor Brown directed State officials to assist farmers and communities that are economically impacted by dry conditions and to ensure the state can respond if Californian's face drinking water shortages. The Governor also directed State agencies to conserve water and initiated a greatly expanded water conservation public awareness campaign (www.saveourh2o.org).

The 2013-2015 drought resulted in increased public interest in AWMPs and water use efficiency. Due to the continuation of severe drought conditions, on April 1, 2015, Governor Brown directed agricultural water suppliers that supply water to more than 25,000 acres to include, in their required 2015 AWMPs, a detailed drought management plan and quantification of water supplies and demands for the years 2013, 2014, and 2015, to the extent data is available (Executive Order B-29-15)⁷.

The Executive Order also extended AWMP requirements to agricultural water suppliers, including Central Valley Project Act & Reclamation Reform Act federal contractors, which supply water to 10,000 to 25,000 acres of irrigated lands by requiring each to develop an AWMP and submit it to DWR by

⁶ 23 CCR §597, et seq.

⁷ Executive Order B-29-15 (April 1, 2015) http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf

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July 1, 2016. It required that these plans also include a detailed drought management plan along with quantification of water supplies and demands for 2013, 2014, and 2015, to the extent data is available.

The Governor directed DWR to give priority in grant funding to this class of water suppliers for the development and implementation of the AWMPs. DWR provided grant funding to agricultural water suppliers providing water to 10,000 to 25,000 irrigated acres to assist them in completing their 2015 AWMPs per the Executive Order. Thirteen agricultural water suppliers accepted grant funds for a total of \$350,000.

SB X7-7 Exemptions

The SB X7-7 requirements do not apply to any agricultural water supplier that is a signatory 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

Agricultural Water Use Efficiency and Drought Planning - Executive Order B-37-16

On May 9, 2016, Governor Brown issued Executive Order B-37-16 and directed DWR and the Department of Food and Agriculture, among other directives, to update existing requirements for Agricultural Water Management Planning to increase water efficiency in their service area and to adequately plan for periods of limited water supply. The Executive Order also directed DWR to draft recommendations lowering the threshold for AWMP submittal from 25,000 irrigated acres to 10,000 irrigated acres.

AWMP and EWMP Compliance Required for Grant Eligibility

Since July 1, 2013, 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, CWC §10608.56(b). 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.

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 included agricultural water suppliers, water user associations, environmental advocacy groups, academia, and interested parties. The ASC met in January 2015 through June 2015 to review a draft and final AWMP Guidebook (see below).

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:

ASC membership included 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 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. Those that supply less than 25,000 irrigated acres are not subject to the regulation unless funding is specifically provided for this purpose.
- A range of options for agricultural water measurement is provided, including:
 - $\pm 12\%$ accuracy by volume for existing measurement devices.
 - $\pm 5\%$ accuracy by volume for new devices that are laboratory certified.
 - $\pm 10\%$ 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 was incorporated into this regulation by reference.

¹⁰ Water Code §10608.8(i)

AWMP Guidebook Released and Technical Assistance Provided in 2015

In June 2015, DWR released the revised *Guidebook to Assist Agricultural Water Suppliers to Prepare a 2015 Agricultural Water Management Plan* (AWMP Guidebook). The Guidebook details how a water supplier can comply with SB X7-7 in their AWMPs.¹¹

While working with the ASC and through a public process, DWR revised the 2012 AWMP Guidebook in preparation of the required 2015 AWMP adoption and submittal date. Two ASC meetings were held: one in January 2015, and another June 2015 to receive input on the AWMP Guidebook content. Both meetings were held via webinar and were open to the public. Subsequent to the release of the revised AWMP Guidebook, DWR held a public workshop on its use and implementation in August 2015.

DWR Plan Review

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

DWR reviewed the submitted AWMPs as they were submitted. A list of the agricultural water suppliers who submitted plans can be found in Tables 2a and 2b in Section 4. A discussion of EWMP implementation, as described in the 2015 AWMPs, is in Section 5 and is summarized in Tables 4a, 4b and 5a, and 5b of that section. Links to the submitted plans can be found on the DWR website.¹³

¹¹ The Guidebook can be found on DWR's web site:

<http://www.water.ca.gov/wateruseefficiency/sb7/docs/2015/Approved%20Final%202015%20AWMP%20Guidebook%20June%202015.pdf>

¹² Water Code §10845(d)

¹³ <http://www.water.ca.gov/wateruseefficiency/sb7/planlist2015.cfm>

Section 4: Status of Adopted Agricultural Water Management Plans

The CWC Part 2.8, §10845, requires agricultural water suppliers supplying more than 25,000 irrigated acres (less acres irrigated with recycled water) to submit an AWMP by January 31, 2016. Executive Order B-29-15 required all water suppliers that irrigate over 10,000 acres to adopt and submit AWMPs by July 1, 2016.

As of early August 2017, DWR has received AWMPs from 69 agricultural water suppliers that irrigate over 10,000 acres each. These plans represent approximately four million acres or roughly 50 percent of the 8.13 million acres of irrigated lands estimated in the California Water Plan Update 2013. Water suppliers that supply less than 10,000 irrigated acres were not required to submit plans to DWR.

Table 1: Status of 2015 AWMP Submittals

Supplier Size	Plan Type	Required to Submit	Submitted Individual or Regional Plans	Irrigated Acres Covered	% Compliance
>25,000 irrigated acres	SB X7-7	26	23	1,769,071	88%
	Reclamation	29	21	2,020,536	69%
	Subtotal	55	44	3,789,607	80%
10,000-25,000 irrigated acres	SB X7-7	17	13	183,016	76%
	Reclamation	21	12	216,389	57%
	Subtotal	38	25	399,405	66%
Total		93	69	4,189,012	74%

Listing of Suppliers Who Submitted 2015 AWMPs

Tables 2a and 2b provide a listing of agricultural water suppliers serving greater than 25,000 irrigated acres who submitted plans and who did not submit plans, respectively. Tables 2a and 2b provide a listing of agricultural water suppliers, serving over 25,000 irrigated acres and between 10,000 and 25,000 irrigated acres respectively, who submitted plans. In total, submitted plans covered an area of 4,189,012 irrigated acres.

Table 2a: Water Suppliers (>25,000 irrigated acres) that Submitted 2015 Plans

Water Supplier	Date submitted	Irrigated Acres	Plan Type
Alta ID	12/9/2015	109,758	SBX7-7
Biggs-West Gridley WD*	1/13/2016	26,931	SBX7-7
Buena Vista WSD	3/4/2016	48,810	SBX7-7
Cawelo WD	6/29/2016	36,073	SBX7-7
Consolidated ID	8/9/2016	138,971	SBX7-7
Corcoran ID	8/18/2015	40,655	SBX7-7
Kern Delta WD	12/28/2015	122,000	SBX7-7
Laguna ID	1/27/2016	30,913	SBX7-7
Merced ID	7/21/2016	116,011	SBX7-7
Modesto ID	12/29/2015	67,392	SBX7-7
Nevada ID	2/1/2016	29,300	SBX7-7
North Kern WSD	1/19/2016	60,000	SBX7-7
Oakdale ID	3/29/2016	64,724	SBX7-7
Richvale ID*	2/29/2016	37,423	SBX7-7
Semitropic WSD	4/1/2016	107,520	SBX7-7
South San Joaquin ID	12/22/2015	56,500	SBX7-7
South Sutter WD	4/29/2016	44,200	SBX7-7
Tulare Lake Basin WSD	11/12/2015	190,000	SBX7-7
Turlock ID	12/10/2015	146,380	SBX7-7
Western Canal WD*	2/26/2016	58,253	SBX7-7
Wheeler-Ridge-Maricopa WSD	4/6/2016	108,845	SBX7-7
Yolo County FC&WCD	2/11/2016	48,839	SBX7-7
Yuba County WA	4/4/2016	79,573	SBX7-7
Subtotal		1,769,071	23
Arvin-Edison WSD	11/12/2015	111,250	CVPIA
Central California ID	8/10/2015	141,500	CVPIA
Chowchilla WD	12/22/2015	65,000	CVPIA
Colusa County WD	5/2/2017	29,204	CVPIA
Delano-Earlimart ID	1/30/2017	49,149	CVPIA
Fresno ID	2/18/2016	142,000	CVPIA
Glenn-Colusa ID**	12/16/2016	135,615	Sacramento Valley Settlement Contractors
Lower Tule River ID	12/21/2015	85,000	CVPIA
Madera ID	4/25/2017	94,077	CVPIA
Orland-Artois WD	4/25/2017	28,200	CVPIA
Pixley ID	12/21/2015	56,283	CVPIA

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Water Supplier	Date submitted	Irrigated Acres	Plan Type
Reclamation District No. 108**	1/6/2017	47,620	Sacramento Valley Settlement Contractors
San Benito WD	11/16/2015	36,184	CVPIA
San Luis Canal Co.	8/10/2015	43,000	CVPIA
San Luis WD	1/10/2017	33,819	CVPIA
Shafter-Wasco ID	2/11/2016	30,755	CVPIA
Solano ID	2/29/2016	73,061	CVPIA
Stockton-East WD	8/8/17	143,300	CVPIA
Sutter Mutual WC**	1/6/2017	46,746	Sacramento Valley Settlement Contractors
Tulare ID	1/28/2016	58,773	CVPIA
Westlands WD	4/13/2017	570,000	CVPIA
Subtotal		2,020,536	21
Total		3,789,607	44

* 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

*** These water districts are included in the San Diego Regional AWMP

Table 2b: Water Suppliers (10,000 to 25,000 irrigated acres) that Submitted 2015 Plans

Water Supplier	Date submitted	Irrigated Acres	Plan Type
Browns Valley ID	7/22/2016	14,876	SBX7-7
Butte WD*	1/4/2017	16,851	SBX7-7
Dudley Ridge WD	1/20/2016	18,000	SBX7-7
Lone Tree MWC	7/1/2015	11,574	SBX7-7
Orland Unit WUA	5/11/2017	14,151	SBX7-7
Rainbow MWD***	3/15/2016	10,472	SBX7-7
Rancho California WD	6/23/2016	14,146	SBX7-7
Reclamation District 2035	7/29/2016	14,263	SBX7-7
Reclamation District 2068	9/14/2016	12,496	SBX7-7
Riverdale I.D.	11/15/2016	14,879	SBX7-7
Sutter Extension WD*	11/17/2016	20,000	SBX7-7
Valley Center MWD***	3/15/2016	10,003	SBX7-7
Woodbridge ID	6/29/2016	11,305	SBX7-7
Subtotal		183,016	13
Banta-Carbona I.D.	4/19/2017	18,383	CVPIA
Columbia Canal Co.	8/10/2015	15,518	CVPIA
Firebaugh Canal W.D.	8/10/2015	21,554	CVPIA
James ID	8/26/2016	22,687	CVPIA

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Water Supplier	Date submitted	Irrigated Acres	Plan Type
Kern-Tulare WD	8/31/2016	19,000	CVPIA
Maine Prairie W.D.	3/7/2017	13,356	CVPIA
Natomas MWC**	1/6/2017	24,000	Sacramento Valley Settlement Contractors
Patterson ID	6/28/2016	12,660	CVPIA
Provident ID**	1/6/2017	14,424	Sacramento Valley Settlement Contractors
Reclamation District No. 1004**	1/6/2017	19,755	Sacramento Valley Settlement Contractors
West Stanislaus I.D.	9/16/2016	20,155	CVPIA
Westside W.D.	9/21/2016	14,897	CVPIA
Subtotal		216,389	12
Total		399,405	25

* 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

*** These water districts are included in the San Diego Regional AWMP

In addition to the required suppliers, 19 small water suppliers have voluntarily submitted plans. These include suppliers that provided water to less than 10,000 irrigated acres. Fifteen (15) of those suppliers submitted their voluntary plans as part of two regional plans:

- 1 San Diego Regional Plan (14 total water suppliers: 2 medium and 12 small/volunteer).
 - 1 Sacramento River Settlement Contractors Regional Plan (6 water suppliers; 3 volunteer).
- These water suppliers implement “CALFED Targeted Benefits”

Listing of Suppliers Who Did Not Submit 2015 AWMPs as Required

Tables 3a and 3b provide a listing of agricultural water suppliers, serving over 25,000 irrigated acres and between 10,000 and 25,000 irrigated acres respectively, who did not submit plans as required.

Table 3a: Water Suppliers (> 25,000 irrigated acres) that did not Submit 2015 Plans

Ag Water Supplier	Irrigated Acres	Plan Type	Comments
Belridge WSD	46,130	SBX7-7	
Berrenda Mesa WD	28,400	SBX7-7	
Central San Joaquin WCD	48,000	CVPIA	
Del Puerto WD	45,229	CVPIA	
Lindmore ID	25,512	CVPIA	Notified DWR as in progress
Lost Hills WD	31,915	SBX7-7	
Orange Cove ID	27,557	CVPIA	
Palo Verde ID	106,582	RRA	Colorado River
Panoche WD	4,8302	CVPIA	
Southern San Joaquin MUD	43,893	CVPIA	
Tule Lake ID	67,001	RRA	Klamath River Basin
Total	518,521	12	

Note: CVPIA = United States Bureau of Reclamation, Central Valley Improvement Act; RRA: Reclamation Reform Act of 1982. The status of these can be found on DWR's website: <http://www.water.ca.gov/wateruseefficiency/>

Table 3b: Water Suppliers (10,000 to 25,000 irrigated acres) that did not Submit 2015 Plans

Ag Water Supplier	Irrigated Acres	Plan Type	Comments
Bard WD	15,000	CVPIA	
Byron Bethany ID	10,000	CVPIA	Notified DWR as in progress
Exeter ID	12,669	CVPIA	
Galt ID	15,692	CVPIA	
Henry Miller WD	16,721	SBX7-7	
Ivanhoe ID	10,589	CVPIA	Notified DWR as in progress
Kings River WD	10,000	SBX7-7	Notified DWR as in progress
Lindsay-Strathmore ID	12,700	CVPIA	
Porterville ID	12,980	CVPIA	
Reclamation District No. 999	24,317	SBX7-7	
St. Johns WD	11,713	SBX7-7	
Saucelito ID	17,776	CVPIA	Notified DWR as in progress
Terra Bella ID	10,955	CVPIA	Notified DWR as in progress
Total	181,112	13	

Note: CVPIA = United States Bureau of Reclamation, Central Valley Improvement Act; RRA: Reclamation Reform Act of 1982. The most up-to-date status of these plans can be found on DWR's website: <http://www.water.ca.gov/wateruseefficiency/>

Examples of Exemplary 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 and water use efficiency information regarding EWMPs.¹⁴ Examples of exemplary *regional* plans include:

- Feather River Regional's 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.
- San Diego Regional's AWMP included two water suppliers that were required to file AWMPs per the Executive Order: Valley Center MWD, and Rainbow MWD. There were 12 water supplier not required to file AWMPs: Carlsbad MWD, City of Escondido, City of Oceanside, City of Poway, Fallbrook Public Utility District, Olivenhaim MWD, Ramona MWD, Rincon del Diablo MWD, San Dieguito WD, Santa Fe ID, Vallecitos WD, and Yuima MWD. These 14 water suppliers came together and cooperatively shared data. This had not been done before in the San Diego region.

Effectiveness of AWMPs in Promoting Efficient Agricultural Water Management Practices

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 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.

Future DWR Actions Related to Agricultural Water Management Plans

DWR will continue to consult with agricultural stakeholders, 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

¹⁴ Water Code §10845(b)

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be provided.

- Work with Reclamation to align their agricultural water management plans with DWR's.
- Identify additional water suppliers who may be required to submit AWMPs.

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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.” (CWC §10608.48(d)).¹⁵ SB X7-7 legislation allowed suppliers to submit plans that were prepared for Reclamation.

This section focuses on EWMPs as described in SB X7-7 and provides a summary of EWMPs in all required plans that were submitted, including Reclamation plans, which include BMPs that are accepted by Reclamation and by DWR. A table comparing SB X7-7 EWMPs and Reclamation’s BMPs can be found in Appendix B. The Sacramento Valley Settlement Contractors are not subject to Reclamation’s Standard Criteria or BMPs. Instead, they implement “CALFED Targeted Benefits”.

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.

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 and 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 suppliers that supply more than 25,000 irrigated acres (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 531.10¹⁶.
- (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).

Water Measurement

Of the 44 agricultural water suppliers that submitted their required plans (SB X7-7, or Reclamation), 39 of these suppliers reported compliance with the water measurement critical EWMP.

Flow measurement device types used to comply with the measurement requirements varied 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 varied from uniform block pricing to tiered rates and decreasing block rates, with some unique situations.

Four agricultural water suppliers that were not yet fully compliant with the measurement critical EWMP submitted compliance plans to meet the requirements of CWC §10608.48(b) and Title 23 CCR §597.1(a). For example, a district that did not meet all of the code section requirements indicated that they are piloting a program to determine workable metering solutions, infrastructure modification requirements, and implementation costs.

Quantity Pricing

Of the 44 agricultural water suppliers that submitted their required plans (SB X7-7, or Reclamation), 39 suppliers reported compliance with the quantity pricing critical EWMP. Of the four agricultural water suppliers that were not yet fully compliant with the quantity pricing EWMP, all are planning to implement it.

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 a financial incentive to improve irrigation efficiency and reduce the volume of applied water.

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 with examples provided. The following describes the implementation by the water suppliers that supply >25,000 irrigated acres. Three large water suppliers that are part of the Sacramento Valley Settlement Contractors do not have parallel BMPs to the State's EWMPs. Instead, they are required to implement CALFED Targeted Benefits.

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.

Of the 44 agricultural water suppliers submitting required plans per SB X7-7 and Reclamation, 13 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 farming 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.

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.

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.

Of the 44 agricultural water suppliers submitting required plans per SB X7-7 and Reclamation, 23 water suppliers report that they are currently implementing this EWMP.

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.

Responses to this EWMP range from having no access to urban wastewater that meet 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. Examples of districts that implemented this EWMP include:

- Cawelo WD uses 30,000 AF/year of recycled water from oil fields
- Nevada ID uses 2500-7385 AF/year of recycled water
- South San Joaquin ID uses wastewater from municipal and industrial sources.

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 Environmental Quality Incentive Program. System improvements could include irrigation and drainage system components and design, to on-farm regulating and tailwater basins.

Of the 44 agricultural water suppliers submitting required plans per SB X7-7 and Reclamation, 35 water suppliers report that they are currently implementing 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.

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

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.

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.

- 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.

Of the 44 agricultural water suppliers submitting required plans per SB X7-7 and Reclamation, 36 water suppliers report that they are currently implementing this EWMP.

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.

Examples of implementation of this EWMP range 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.

Of the 44 agricultural water suppliers that submitted required plans per SB X7-7 and Reclamation, 37 are implementing conveyance system lining or piping, regulatory reservoirs, or a combination of the two. Five of the water suppliers not implementing this EWMP report that canal lining or piping is not applicable because of slow seepage through soils.

6 - Delivery Flexibility

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

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

Of the 44 agricultural water suppliers that submitted required plans per SB X7-7 and Reclamation, 39 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

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.

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.

This EWMP is the only one that is the same as one of the “CALFED Targeted Benefits” that the Sacramento Valley Settlement Contractors must implement.

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 per SB X7-7 and Reclamation, 39 water suppliers report that they are currently implementing 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.

Of the 44 agricultural water suppliers submitting required plans per SB X7-7 and Reclamation, 39 water suppliers report that they are currently implementing 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 submitting required plans per SB X7-7 and Reclamation, 37 water suppliers report that they are currently implementing this EWMP.

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.

Of the 44 agricultural water suppliers that submitted required plans per SB X7-7 and Reclamation, 36 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.

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.

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.

Of the 44 agricultural water suppliers required to submit plans per SB X7-7 and Reclamation, 38 water suppliers reported that they have water conservation coordinators.

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

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.

Of the 44 agricultural water suppliers that submitted a required plan per SB X7-7 and Reclamation, 38 water suppliers reported that they provide some type of water management service to their customers.

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.

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 per SB X7-7 and Reclamation, 30 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. This EWMP is not included among Reclamation’s BMPs.

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 per SB X7-7 and Reclamation, 35 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.

Overview of EWMP Reporting in 2015 AWMPs

Tables 4a and 5a illustrate the reported or planned implementation of EWMPs in the 2015 AWMPs for large and medium sized agricultural water suppliers respectively.

Tables 4b and 5b, illustrate the reported or planned implementation of BMPs (which are mostly equivalent to the State’s EWMPs) for large and medium sized agricultural water suppliers, respectively. Reclamation plans are submitted in accordance with CWC §10828. These are included in separate tables 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.

Table 4a: SB X7-7 Efficient Water Management Practices (EWMP) Implementation for 23 Ag Water Suppliers >25,000 Irrigated Acres

EWMP	Number of Agricultural Water Suppliers				Estimated Water Savings
	Implemented	Planned	Technically Infeasible	Not Cost Effective	
Critical					
Water Measurement	20	3	0	0	4
Volume-Based Pricing	20	3	0	0	7
Conditional					
Facilitate Alternate Land Use	7	0	16	1	2
Recycled Water Use	14	0	9	0	5
Facilitate On-Farm Capital Improvements	18	1	2	2	9
Incentive Pricing Structure	19	1	2	1	8
Infrastructure Improvements	20	0	1	2	10
Order/Delivery Flexibility	22	0	1	0	8
Supplier Spill & Tailwater Systems	23	0	0	0	9
Conjunctive Use	22	0	1	0	7
Automated Canal Controls	21	1	0	1	10
Facilitate or Promote Customer Pump Test & Evaluation**	19	1	1	2	7
Conservation Coordinator	21	1	1	0	4
Water Management Services to Customer	21	0	1	1	8
Identify Institutional Changes	22	0	1	0	6
Supplier Improved Pump Efficiency	19	0	4	0	5
<p>“Implemented” are the number of water suppliers that implemented each of the individual EWMPs listed to the left.</p> <p>“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.</p> <p>“Technically infeasible” are the number of water suppliers where each of the individual EWMPs are not feasibly implemented due to technical reasons.</p> <p>“Not Cost Effective” are the number of water suppliers where each of the individual EWMPs are not locally cost effective.</p> <p>“Estimated Water Savings” are the number of water suppliers that included an estimated water savings per EWMP in AF per year.</p>					

Table 4b: Best Management Practices (BMPs) Implementation for Reclamation Water Conservation Plans >25,000 Irrigated Acres for 21 Ag Water Suppliers

BMP	Number of Agricultural Water Suppliers			
	Implemented	Planned	Not Applicable/ Appropriate	Omitted*
Critical				
Water Measurement	16	1	0	3
Volume-Based Pricing	16	1	0	3
Conditional				3
Facilitate Alternate Land Use	6	0	11	3
Recycled Water Use	9	1	7	3
Facilitate On-Farm Capital Improvements	17	0	0	3
Incentive Pricing Structure	16	0	1	3
Infrastructure Improvements	17	0	0	3
Order/Delivery Flexibility	17	0	0	0
Supplier Spill & Tailwater Systems	16	0	1	3
Conjunctive Use	17	0	0	3
Automated Canal Controls	16	0	1	3
Facilitate or Promote Customer Pump Test & Evaluation	17	0	0	3
Conservation Coordinator	17	0	0	3
Water Management Services to Customer	17	0	0	3
Identify Institutional Changes	8	0	9	3
Supplier Improved Pump Efficiency	16	0	1	3
*Three large-sized Reclamation water suppliers are not subject to Reclamation BMPs and instead implement "CALFED Targeted Benefits"				
"Implemented" are the number of water suppliers that implemented each of the individual BMPs listed to the left.				
"Planned" are the number of water suppliers where the individual BMPs 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 BMP is not feasibly implemented for a variety of reasons.				
"Omitted" are the number of water suppliers that did not address the individual BMP.				

Table 5a: SB X7-7 Efficient Water Management Practices (EWMPs) Implementation for 13 Ag Water Suppliers 10,000-25,000 Irrigated Acres

(Critical EWMPs are not required.)

EWMP	Number of Agricultural Water Suppliers				Estimated Water Savings
	Implemented	Planned	Technically Infeasible	Not Cost Effective	
Critical					
Water Measurement	8	0	0	5	0
Volume-Based Pricing	9	0	0	4	1
Conditional					
Facilitate Alternate Land Use	3	0	10	0	0
Recycled Water Use	2	0	11	0	1
Facilitate On-Farm Capital Improvements	8	1	1	3	3
Incentive Pricing Structure	9	0	2	2	4
Infrastructure Improvements	11	0	2	0	2
Order/Delivery Flexibility	12	0	1	0	2
Supplier Spill & Tailwater Systems	13	0	0	0	2
Conjunctive Use	12	0	1	0	2
Automated Canal Controls	7	0	5	1	2
Facilitate or Promote Customer Pump Test & Evaluation**	11	0	2	0	2
Conservation Coordinator	13	0	0	0	2
Water Management Services to Customer	13	0	0	0	2
Identify Institutional Changes	13	0	0	0	2
Supplier Improved Pump Efficiency	10	0	3	0	0
<p>“Implemented” are the number of water suppliers that implemented each of the individual EWMPs listed to the left.</p> <p>“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.</p> <p>“Technically infeasible” are the number of water suppliers where each of the individual EWMPs are not feasibly implemented due to technical reasons.</p> <p>“Not Cost Effective” are the number of water suppliers where each of the individual EWMPs are not locally cost effective.</p> <p>“Estimated Water Savings” are the number of water suppliers that included an estimated water savings per EWMP in AF per year.</p>					

Table 5b: Best Management Practices (BMPs) Implementation for Reclamation Water Conservation Plans representing 12 Ag Water Suppliers 10,000-25,000 Irrigated Acres (Pursuant to Water Code §10828.)

BMP	Number of Agricultural Water Suppliers			
	Implemented	Planned	Not Applicable/ Appropriate	Omitted*
Critical				
Water Measurement	9	0	0	3
Volume-Based Pricing	9	0	0	3
Conditional				
Facilitate Alternate Land Use	1	0	8	3
Recycled Water Use	1	0	8	3
Facilitate On-Farm Capital Improvements	8	0	1	3
Incentive Pricing Structure	9	0	0	3
Infrastructure Improvements	9	0	0	3
Order/Delivery Flexibility	12	0	0	0
Supplier Spill & Tailwater Systems	7	0	2	3
Conjunctive Use	7	0	2	3
Automated Canal Controls	9	0	0	3
Facilitate or Promote Customer Pump Test & Evaluation	8	0	1	3
Conservation Coordinator	9	0	0	3
Water Management Services to Customer	8	0	1	3
Identify Institutional Changes	3	0	0	3
Supplier Improved Pump Efficiency	9	0	0	3
*Three medium-sized Reclamation water suppliers are not subject to Reclamation BMPs and instead implement "CALFED Targeted Benefits"				
"Implemented" are the number of water suppliers that implemented each of the individual BMPs listed to the left.				
"Planned" are the number of water suppliers where the individual BMPs 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 BMP is not feasibly implemented for a variety of reasons.				
"Omitted" are the number of water suppliers that did not address the individual BMP.				

EWMP Effectiveness in Improving Water Use Efficiency in 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. 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 Tables 4a, 4b, 5a and 5b).

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.

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.

In addition, as noted in Section 6, recommendations made by DWR and other State Agencies in the April 2017 Report to the Governor and Legislature, "Making Water Conservation a California Way of Life" propose a new "water budget" based AWMP framework. This would also help quantify EWMP effectiveness and improve estimates of water use efficiency improvements. Upon statutory authorization, the new framework along with proper tools and resources will assist agricultural water suppliers in quantifying various components of their overall water budget, prioritize EWMP implementation, and thus, better estimate the associated water use efficiency improvements.

Future DWR Actions Related to Efficient Water Management Practices

SB X7-7 directs DWR to consider updates to the EWMPs.¹⁷ 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. 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. As funding permits, DWR will promote research and development of additional EWMPs and new technologies and management strategies that promote water use efficiency and conservation.

¹⁷ Water Code §10608.48(h)

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Section 6: Recommendations for Legislative Changes

On May 9, 2016 the Governor issued Executive Order B-37-16 that aims to bolster California’s climate and drought resilience. Built on the temporary statewide emergency water restrictions, this Executive Order directed five State agencies (DWR, State Water Resources Control Board, California Energy Commission, California Department of Food and Agriculture and California Public Utilities Commission, collectively, the EO Agencies) to establish a long-term water conservation framework that will enhance the resiliency of California communities as a whole against climate and drought. The resulting framework is part of the broader, multi-faceted implementation of the California Water Action Plan.

The EO Agencies prepared a report to the Governor’s Office, Legislature, and the public to summarize their individual and collective implementation actions of, and recommendations for, all items contained in Executive Order B-37-16 to achieve the goal of making conservation a way of life in California. The State agencies released a report in April 2017 titled “Making Water Conservation a California Way of Life” proposing legislative changes to improve water use efficiency and drought preparedness. The report recommends that agricultural water suppliers calculate and include in their AWMP annual water budgets and the efficiency of water use for their service area. The water budget data will be useful to groundwater sustainability agencies in calculating water budgets for their basins as required by the Sustainable Groundwater Management Act. The report also recommends that the submittal threshold for AWMPs be lowered to 10,000 irrigated acres. The report was developed with advice and guidance from an agricultural stakeholder advisory group.

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 five years thereafter.

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

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

10821.

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

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

Article 2. Contents of Plans

10825.

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

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

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

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

- (1) Size of the service area.
- (2) Location of the service area and its water

management facilities.

(3) Terrain and soils.

(4) Climate.

(5) Operating rules and regulations.

(6) Water delivery measurements or calculations.

(7) Water rate schedules and billing.

(8) Water shortage allocation policies.

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

(1) Surface water supply.

(2) Groundwater supply.

(3) Other water supplies.

(4) Source water quality monitoring practices.

(5) Water uses within the agricultural water supplier's service area, including all of the following:

(A) Agricultural.

(B) Environmental.

(C) Recreational.

(D) Municipal and industrial.

(E) Groundwater recharge.

(F) Transfers and exchanges.

(G) Other water uses.

(6) Drainage from the water supplier's service area.

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

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

(B) Tabulating water uses.

(C) Overall water budget.

(8) Water supply reliability.

(c) Include an analysis, based on available information, of

the effect of climate change on future water supplies.

(d) Describe previous water management activities.

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

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

10828.

(a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central

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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.

Part 2.55- Chapter 4- Agricultural Water Suppliers

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

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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: Comparison of the SB X7-7 (Water Code), and Reclamation CVPIA
(2014 Standard Criteria)**

	Water Code	Reclamation CVPIA
1	Not Required (N/R)	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:	Section 1 Description of the District
3	(1) Size of the service area.	Section 1A History
4	(2) Location of the service area and its water management facilities	Section 1B Location and facilities
5	(3) Terrain and soils	Section 1C Topography and Soils
6	(4) Climate	Section 1D Climate
7	N/R	Section 1E Natural and Cultural Resources
8	(5) Operating rules and regulations	Section 1F Operating Rules and Regulations
9	(6) Water delivery measurements or calculations	Section 1G Water Measurement, Pricing and Billing
10	(7) Water rate schedules and billing	Section 1G Water Measurement, Pricing and Billing
11	(8) 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:	Section 2 Inventory water resources
13	(1) Surface water supply	Section 2A Surface Water Supply
14	(2) Groundwater supply	Section 2B Groundwater Supply
15	(3) Other water supplies	Section 2C Other Water Supplies
16	(4) 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:	Section 2E Water Uses with the District
18	(A) Agricultural	Section 2E1 Agricultural
19	(B) Environmental	N/R
20	(C) Recreational	N/R
21	(D) Municipal and industrial	Section 2E2 Urban
22	(E) Groundwater recharge	Section 2E3 Groundwater Management Plan/Banking Programs
23	(F) Transfers and exchanges	Section 2E4 Transfers, Exchanges, Rescheduling, Purchases, or Sales
24	(G) Other water uses	Section 2E5 Other
25	(6) Drainage from the water supplier's service area	Section 2F Outflow from the District
26	(7) Water accounting, including all of the following:	Section 2G Water Accounting
27	(A) Quantifying the water supplier's water supplies	Section 2G1 Quantify Contractor's Water Supplies

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	Water Code	Reclamation CVPIA
28	(B) Tabulating water uses	Section 2G2 Quantify Water Used
29	(C) Overall water budget	Section 2G3 Overall Water Budget
30	(8) Water 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
32	(d) Describe previous water management activities	N/R
33	(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48	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:	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.	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)	Section 3A1 Water Measurement
37	(2) Adopt a pricing structure for water customers based at least in part on quantity delivered	Section 3A4 Pricing Structure
38	(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:	Section 3B Exemptible BMPs for Agricultural Contractors
39	(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage	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	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	Section 3B3 Facilitate the Financing of Capital Improvements for On-Farm Irrigation Systems.
42	N/A	N/R
43	(4) Implement an incentive pricing structure that promotes one or more of the following goals:	Section 3B4 Incentive Pricing
	(A) More efficient water use at the farm level	N/R

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44		
45	(B) Conjunctive use of groundwater	Section 3B9 Optimize Conjunctive Use
46	(C) Appropriate increase of groundwater recharge	(see above)
47	(D) Reduction in problem drainage	N/R
48	(E) Improved management of environmental resources	N/R
49	(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions	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 seepage	N/R
51	(6) Increase flexibility in water ordering by, and delivery to, water customers 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	Section 3B7 Construct and Operate Spill and Tailwater Recovery Systems
53	N/R	Section 3B8 Plan to Measure Outflow
54	(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area	Section 3B9 Optimize Conjunctive Use
55	(9) Automate canal control structures.	Section 3B10 Automate Distribution and/or Drainage System Structures
56	(10) Facilitate or promote customer pump testing and evaluation	Section 3B11 Facilitate or Promote Water User Pump Testing and Evaluation
57	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	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:	Section 3A3 Provide or Support the Availability of Water Management Services to Water Users
60	(A) On-farm irrigation and drainage system evaluations	Section 3A3a On-farm evaluations
61	(B) 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	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	Section 3A3d Agricultural water management educational programs and material for farmers and staff, and the public.
64	N/R	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 flexible water deliveries and storage	Section 3A4 Evaluate Polices of Regulatory Agencies Affecting the Contractor and Identify Policies that Inhibit Good Water Management

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66	(14) Evaluate and improve the efficiencies of the supplier's pumps.	Section 3A5 Evaluate and Improve Efficiencies of Contractor's Pumps
67	N/R	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.	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
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	Reclamation releases the plans for public comment after they are received from the water supplier and deemed adequate.
71	N/R	N/R
72	§10608.48(g) on or before December 31, 2013, and December 31, 2016, and December 31, 2021, DWR, in consultation with the Water Board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented, and an assessment how those measures have affected and will affect agricultural operations, and estimated water use efficiency improvements, if any. §10845 DWR shall prepare and submit to the Legislature, on or before December 31, 2013, and	N/R – No Congressional report required. A Ten-year progress report was issued in 2004 for years 1993-2002, and covered all aspects of CVPIA.

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	thereafter in the years ending in six and one, a report summarizing the status of the plans adopted.	
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.	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.