Draft
Agricultural Water Management Plan Requirements Update

Per Executive Order B-37-16

September 26, 2016

Introduction

Governor Brown released Executive Order B-37-16 on May 9, 2016 directing the California Department of Water Resources (DWR) to work with the California Department of Food and Agriculture (CDFA) to update the agricultural water management plan requirements through the following actions:

1.) Update requirements to ensure these plans identify and quantify measures to increase water efficiency and to plan for periods of limited water supply.
2.) Require the submittal of agricultural water management plans from suppliers who provide water to more than 10,000 acres of land.

The updated draft requirements are to be publicly released by January 10th, 201

Quantification of the Efficiency of Agricultural Water Use

Water Balance Approach

To make the AWMP a more effective planning document, the proposed AWMP revisions will require a water balance that accounts for inflows to and outflows from the water supplier's service area. Including a water balance as part of the AWMP provides the following benefits:

- Better quantifies the flows of water within the district and better estimates unmeasurable flows such as deep percolation.
- Provide the data necessary to quantify water management efficiency within the district
- Helps identify areas where water efficiency improvements can be made

Water suppliers currently are required to describe the following metrics in water management plans:

1. Surface water supplies
2. Supplier groundwater pumping
3. Service area water uses
4. Service area drainage

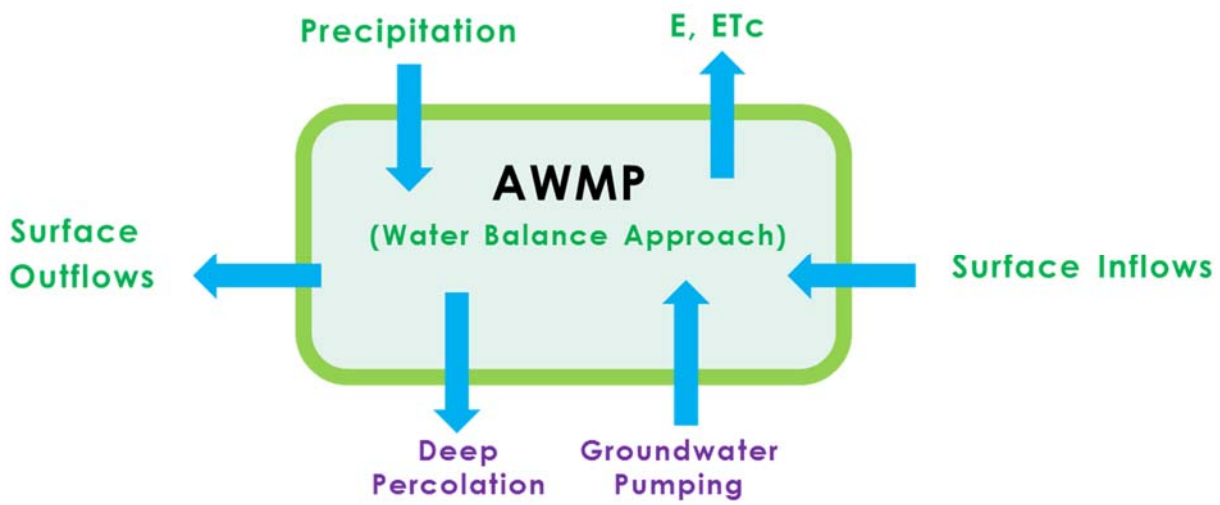
To develop a service area water balance, the proposed revisions will require water suppliers to quantify or estimate all reported metrics and to report on 4 additional metrics.

1. Precipitation
2. Agricultural Evapotranspiration

3. Percolation to groundwater
4. Private groundwater pumping

The state through the agricultural water management program or the Sustainable Groundwater Management program may provide tools and resources to assist suppliers in developing and quantifying new inputs

The Figure below shows a conceptual water balance for an irrigation district



Water Management Fraction (WMF)

In addition to the water balance, the proposed AWMP revisions would require suppliers to quantify water management efficiency for the supplier's service area. Suppliers would choose one of the four efficiency quantification methods provided in the 2012 DWR report to the Legislature titled, "A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use". These methods calculate the ratio of beneficial use to applied water. The equations for the 4 methods are provided below:

1.) Crop Consumptive Use Fraction (CCUF)

CCUF= ETAW/AW

<u>Evapotranspiration of Applied Water (ETAW)</u> is crop evapotranspiration minus the amount of precipitation transpired by the crop

<u>Applied Water (AW)</u> is the total volume of water that is applied

2.) Agronomic Water Use Fraction (AWUF)

Agronomic Use (AU) is the portion of applied water used for water management applications essential for crop production. Examples of essential water management applications include salinity management, frost control, and winter flooding for straw decomposition.

3.) Total Water Use Fraction (TWUF)

TWUF=(ETAW + AW + EU)/AW

Environmental Use (EU) is the portion of applied water directed to environmental purposes, including water to produce and/or maintain wetlands, riparian or terrestrial habitats.

4.) Water Management Fraction (WMF)

WMF= (ETAW +RF)/(AW)

Recoverable Flows (RF) is the amount of water leaving a given area as surface flows to non-saline bodies or percolation to usable groundwater that is available for supply or reuse.

Outcome or Objective Based Water Management Planning

Water balances and the calculation of the water management efficiency will help suppliers identify flows or uses of water where efficiency can be improved. Additionally water suppliers may seek or be required to meet environmental requirements such as stream flow and timing or water quality improvements. In using outcome or objective based planning specific goals or results are identified (e.g. decrease percolation to saline ground, provide greater flexibility in irrigation deliveries) and then specific water management practices or measures are selected and implemented to achieve the stated outcome or objective.

DWR proposes to revise the AWMP efficient water management practices (EWMP) requirements to require suppliers to identify and select specific water management objectives to improve water efficiency or meet environmental objectives. Water suppliers would include a plan in the AWMP on

how they plan to meet these objectives and would identify specific efficient water management practices the supplier would implement to achieve the stated objective or objectives.

Drought Management Planning

The proposed updated AWMP requirements will include a Drought Plan (DP) similar to the one included in the 2015 AWMP Guidebook. Based on stakeholders' input, and similar to what is required of urban water suppliers, the proposed DP requirements may also include language to require planning for a 5-year sequential drought period.

The DP should detail how the water supplier would prepare for droughts and manage water supplies and allocations during drought conditions. Some components or actions may require detailed review of conditions, policy changes, and long term capital improvements. Additionally, as conditions change and new technology and knowledge becomes available, opportunities and constraints will change.

A description of the water shortage allocation policies is required by the Water Code and will be a key component of the DP. Water suppliers that have a Water Shortage Allocation Policy should attach a copy of the policy to their AWMP and describe how water is allocated during a shortage.. If the supplier does not have such a policy, the agricultural water supplier can describe how reduced water supplies are allocated.

In addition to the water shortage allocation policy, the DP should consider describing the following components:

1.) What hydraulic levels or conditions (reservoir levels, stream flows, groundwater, snowpack etc.) are monitored and measured to determine the water supply available and level of drought severity.

2.) The district's policy and process for declaring a water shortage and implementing the water shortage allocation and drought management plan.

3.) Operational Adjustments- changes in district water management and district operations to respond to drought, including canal and reservoir operations and groundwater management

4.) Demand Management- policies and incentives in addition to the water shortage allocation plan to lower on farm water use.

5.) Alternative Water Supplies- discuss the potential if possible for the district to obtain or utilize additional water supplies. These supplies could include transfers from another water agency or district, the use of recycled water and desalination of brackish groundwater or drainage water.

6.) Stages of Actions- include the stages of action and corresponding levels of drought severity that district will implement in response to the drought.

7.) Coordination and Collaboration- include a description on how coordination and collaboration with other local districts and water agencies or regional groups will be used in drought response.

8.) Revenues and Expenditures- describe how the drought and lower water allocations will affect the districts revenues and expenditures.

Acreage Threshold for AWMP Applicability

Agricultural water suppliers serving more than 10,000 acres of irrigated land, excluding recycled water, will be required to prepare and adopt an AWMP on or before December 31, 2020 and every five years thereafter.

Reporting

Water suppliers will continue to adopt AWMPs by December 31 in years ending in 0 and 5 and then submit to DWR within 30 days of the adoption date. Suppliers who have not submitted AWMPs within a specified time period will be referred to the State Water Resources Control Board for possible enforcement actions.