

Prohibition of Activities and Mandatory Actions During Drought Emergency

FINDING OF EMERGENCY

The State Water Resources Control Board (State Water Board or Board) finds that an emergency exists due to severe drought conditions and that adoption of the proposed emergency regulation is necessary to address the emergency. California is currently in the fourth year of a significant drought resulting in severe impacts to California's water supplies and its ability to meet all of the demands for water in the State. On January 17, 2014, Governor Edmund G. Brown, Jr. declared a drought state of emergency. On April 25, 2014, the Governor signed an Executive Order (April 2014 Proclamation) stating, among things, "*...that severe drought conditions continue to present urgent challenges: water shortages in communities across the state, greatly increased wildfire activity, diminished water for agricultural production, degraded habitat for many fish and wildlife species, threat of saltwater contamination of large fresh water supplies conveyed through the Sacramento-San Joaquin Bay Delta, and additional water scarcity if drought conditions continue into 2015.*" Due to these concerns, the April 2014 Proclamation, directs the State Water Board to adopt emergency regulations as it deems necessary, pursuant to Water Code section 1058.5, to ensure that urban water suppliers implement drought response plans to limit outdoor irrigation and other wasteful water practices. The April 2014 Proclamation suspended the requirement for review under the California Environmental Quality Act (CEQA) for certain activities, including adoption of emergency regulations by the State Water Board pursuant to Water Code Section 1058.5. On December 22, 2014, Governor Brown issued [Executive Order B-28-14](#), which extended the suspension of the CEQA for certain activities contained in the January 2014 and April 2014 Proclamations, including the State Water Board adoption of emergency regulations pursuant to Water Code section 1058.5, through May 31, 2016.

On July 15, 2014, the State Water Board approved an emergency regulation for urban water conservation. On July 28, 2014, the emergency regulation became effective upon approval by the Office of Administrative Law (OAL). Absent further action, the emergency regulation will expire on April 25, 2015. Continued action is, however, needed to ensure urban water suppliers and all Californians are taking sufficient actions to conserve water and preserve the State's water supply.

Authority for Emergency Regulations

Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations during a period when the Governor has issued a proclamation of emergency based upon drought conditions or in response to drought conditions that exist, or are threatened, in a critically dry year immediately preceded by two or more consecutive below normal, dry, or critically dry years. The State Water Board may adopt regulations under such circumstances to: "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter's priority of right, or in furtherance of

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports.”

Emergency regulations adopted under Water Code section 1058.5 may remain in effect for up to 270 days. Per Water Code section 1058.5, subdivision (b), any findings of emergency the State Water Board makes in connection with the adoption of an emergency regulation under the section are not subject to review by OAL.

Government Code section 11346.1, subdivision (a)(2) requires that, at least five working days prior to submission of the proposed emergency action to OAL, the adopting agency provide a notice of the proposed emergency action to every person who has filed a request for notice of regulatory action with the agency. After submission of the proposed emergency regulations to OAL, OAL shall allow interested persons five calendar days to submit comments on the proposed emergency regulations as set forth in Government Code Section 11349.6.

The information contained within this finding of emergency provides the information necessary to support the State Water Board’s emergency rulemaking under Water Code section 1058.5 and also meets the emergency regulation criteria of Government Code section 11346.1 and the applicable requirements of section 11346.5.

Evidence of Emergency

The U.S. Drought Monitor currently classifies almost the entire state of California as experiencing severe to exceptional drought conditions. In most years, California receives about half of its precipitation in the months of December, January and February, with much of that precipitation falling as snow in the Sierra. Only a handful of large winter storms can make the difference between a wet year and a dry one. In normal years, the snowpack stores water during the winter months and releases it through melting in the spring and summer to replenish rivers and reservoirs. However, warm and relatively dry weather conditions this year have reduced the amount of snowpack in California’s mountains. As of March 3, 2015, Sacramento Region cumulative precipitation was 87 percent of average for that date (8-Station Index). However, most of that precipitation fell as rain, and Northern Sierra snow water content remained extremely low, at 16 percent of average for that date. Similarly, Central and Southern Sierra snowpack is at 20 and 21 percent of average, respectively. Without significant March snowfall, the Sierra snow water content will be the lowest in recorded history. Due to the dry conditions, on January 23, 2015, the State Water Board issued a Notice of Surface Water Shortage and Potential for Curtailment of Water Right Diversions.

Due to these drought conditions and dry conditions for the past several years, storage in California’s reservoirs is also at below average levels. Current storage levels in key reservoirs reflect this trend. Shasta Lake, California’s and the Central Valley Project’s (CVP) largest reservoir, is at 58 percent of its 4.5 million acre-feet (MAF) capacity (78 percent of its historical average for this date). Lake Oroville, the State Water Project’s (SWP) principal reservoir, is at 49 percent of its 3.5 MAF capacity (70 percent of its historical average for the date). Folsom Reservoir is at 58 percent of its 1 MAF capacity (103 percent of average for this date). New Melones Reservoir is at 25 percent of its 2.4 MAF capacity (41 percent of average for this date).

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

New Don Pedro Reservoir is at 43 percent of its 2 MAF capacity (60 percent of average for this date).

Local, state, and federal water agencies across California have limited supplies due to the drought. In response, those agencies have taken various actions, including reducing or eliminating contract water deliveries and implementing mandatory and voluntary conservation efforts.

Need for the Regulation

Immediate action is needed to effectively increase water conservation so that remaining supplies are maintained to address the present drought emergency. Data collected by the State Water Board under the existing emergency regulation demonstrated that urban water conservation efforts could be augmented to minimize the risk of severe supply shortages should drought conditions persist. Without adequate reserves, water suppliers will be unable to address the drought emergency. The emergency regulation improves the State Water Board's and local agencies' abilities to quickly and effectively implement and enforce mandatory water conservation measures during the current drought to help preserve the State's supplies during the ongoing drought emergency.

Description and Effect of Proposed Regulation

The proposed regulation, as updated, consists of four main types of requirements: a prohibition on certain irrigation practices, restrictions on certain commercial activities, an order for all urban water suppliers to implement mandatory restrictions on outdoor irrigation, and an order for water suppliers with 3,000 or more service connections to provide monthly data on water production, compliance actions, and outdoor water conservation measures being implemented. The proposed regulation also includes reporting requirements. All of these requirements are intended to safeguard urban water supplies in the event of continued drought. It is both reasonable and prudent to maintain urban water supplies to the maximum extent feasible to provide local agencies with the necessary flexibility to meet the health and safety needs of Californians during the drought emergency. California has been subject to multi-year droughts in the past and there is minimal likelihood that precipitation this spring will lift the state out of the current drought conditions. Moreover, climate change science indicates that the Southwestern United States are becoming drier, increasing the likelihood of prolonged droughts. In addition, drought conditions have already forced the State Water Board to curtail surface water diversions, and many groundwater basins around the state are already in overdraft conditions that will likely worsen due to groundwater pumping this summer. Many water supply systems face a present or threatened risk of inadequate supply. Should drought conditions persist into 2016, more water supply systems will be at risk of depleting supplies, presenting a great risk to the health and safety of the people supplied by those systems. Maintaining urban water supplies through enhanced conservation will reduce the risks to health and safety, and reduce negative impacts to the State's economy.

Each of the specific prohibitions on water uses and other end user requirements are necessary to promote water conservation to maintain an adequate supply during the drought emergency,

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

which cannot be done if water is being used in an excessive or wasteful manner. These requirements affect practices that use excessive amounts of water or where more efficient and less wasteful alternatives are available. These practices are particularly unreasonable during a drought due to the need to conserve limited water supplies to meet health and safety needs. Exceptions to meet immediate health and safety concerns or to comply with state or federal permit requirements are available, however.

A prohibition on runoff of outdoor irrigation water is necessary to promote water conservation to address the drought emergency. Irrigating residential, commercial, industrial, and recreational landscapes to the point of visible runoff is an excessive use of water and more efficient alternatives are available. This practice depletes water supplies, whose maintenance is critical during a drought for health, safety, and, in some cases, operational flexibility. Runoff enters the storm drain system or evaporates, and does not provide for domestic use, sanitation, or fire protection, which are the primary needs that public water supply distributors must meet during drought periods (Water Code Section 354).

A prohibition on vehicle washing with a running hose (i.e., a hose that is not equipped with a shut-off nozzle) promotes water conservation to address the drought emergency through the use of more efficient and effective washing techniques and options. Washing cars at commercial car wash establishments--which are widely distributed throughout the state--or manual washing with a small amount of water in a bucket or with a hose equipped with a shut-off nozzle are efficient and reasonable techniques for those with a need to wash vehicles.

A prohibition on watering of hardscapes, such as driveways, sidewalks, and asphalt, promotes water conservation to address the drought emergency through the use of more efficient and effective cleaning methods for hardscapes. For example, many hardscapes can be cleaned with a broom, thus conserving water for other uses during a time of extreme scarcity.

A prohibition on the use of potable water without recirculation pumps for fountains and other decorative water fixtures promotes water conservation to address the drought emergency through saving water that would evaporate, leak, or not be reused. In addition, water fixtures do not provide for domestic use, sanitation, or fire protection, and therefore do not promote a use of paramount importance during the drought emergency.

A new prohibition on outdoor irrigation of turf and ornamental landscapes during and shortly after measureable precipitation events promotes water conservation to address the drought emergency by forgoing irrigation during times when landscape water requirements are met by rain.

A new requirement that water only be served on request in restaurants and other food and beverage service establishments promotes water conservation to address the drought emergency by saving water that might otherwise not be consumed and reduces water used in commercial dishwashing. Similarly, requirements on the operators of hotels and motels to provide guests with the option of choosing not to have towels and linens laundered daily promotes water conservation to address the drought emergency by reducing the wasteful use of water associated with unnecessarily washing towels and linens. These high visibility

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

commercial sector requirements will also increase public awareness of the ongoing drought and the need to conserve water.

The proposed update to the regulation to require urban water suppliers with 3,000 or more service connections to implement their Water Shortage Contingency Plans (WSCPs) at a level that includes mandatory restrictions on the number of days per week that outdoor landscape watering with potable water is allowed, and water suppliers without WSCPs and water suppliers which have fewer than 3,000 service connections to implement mandatory restrictions, is necessary to promote conservation to address the drought emergency because mandatory restrictions have proven to be effective at reducing water use. Data collected by the State Water Board under the existing emergency regulation indicate that more than 90 percent of California's large urban water suppliers (those with more than 3,000 service connections) have now formally invoked a stage of their WSCPs that requires mandatory restriction on outdoor water use. However, the mandatory outdoor water use restrictions being implemented vary widely by supplier. For example, some urban water suppliers require limits on the number of days per week that watering is allowed and have limits on the number of minutes that watering is allowed, while other urban water suppliers only have restrictions on the time of day that watering is allowed. The emergency regulation is therefore being updated to limit outdoor watering to two days per week for urban water suppliers that do not already have limits on the number of days per that outdoor watering is allowed. This addition will promote enhanced water conservation by reducing the number of days some residents and businesses irrigate outdoor landscapes.

These limits on outdoor water use are necessary to promote conservation to address the drought emergency because outdoor irrigation accounts for 44 percent of urban water use (see Table 1 below), outdoor irrigation is generally more discretionary than other types of use, and because studies have shown that urban landscapes are often over-watered. Limiting the number of days per week of outdoor irrigation increases conservation and reduces the likelihood of over-irrigation and visible runoff.

The proposed regulation to require urban water suppliers with 3,000 or more service connections to provide the State Water Board with monthly potable water production figures, estimates of residential gallons per capita per day (R-GPCD), details of outdoor use restrictions and local compliance and enforcement actions is necessary so that the State Water Board can track the effectiveness of the proposed regulation and urban water conservation actions. Such monitoring reports will promote the conservation necessary to address the drought emergency.

Estimate of Water Savings from Proposed Regulation

According to the Department of Water Resources' (DWR) Public Review Draft Water Plan Update 2013, total urban water use between 1998 and 2005 was 8.8million acre-feet. The breakdown of the urban use by customer class is provided in Table 1.

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

Table 1: Urban Water Use by Sector in Million Acre-Feet (MAF)

Sector	Volume (MAF)
Residential landscape	3
Large landscape	0.9
Indoor residential	2.7
Commercial, institutional, and industrial	1.7
Other	0.5
Total	8.8

Source: DWR Public Review Draft Water Plan Update 2013

Outdoor irrigation represents 44 percent of the total urban water use (3 MAF for residential landscape and 0.9 MAF for large landscapes). The proposed regulation prohibiting visible runoff affects the 44 percent of statewide urban use dedicated to outdoor irrigation. The proposed regulation to require implementation of WSCPs at a mandatory level by urban water suppliers would, in some cases, entail restrictions on use by other customer classes, including residential indoor use in instances where mandatory restrictions include rationing of residential use. However, a review of the State Water Board's May 2014 Urban Water Conservation Survey results and a select group of WSCPs indicates that water suppliers with significant supply shortages have already implemented mandatory restrictions and are therefore already in compliance with the proposed updated emergency regulation, while those that will need to invoke their WSCPs at a mandatory level to comply do not include restrictions on water use by the non-residential classes at the first level of mandatory restrictions. Thus, the State Water Board anticipates that the proposed updated regulation will have a minimal impact on the 56 percent of urban water used for purposes other than outdoor irrigation. As discussed below, the State Water Board is unable to make a definitive estimate of commercial use savings due to the use restrictions on the food service and hospitality sectors.

At the time that the State Water Board adopted the existing water conservation emergency regulation, many California urban water suppliers were already implementing water conservation measures commensurate with those required by the proposed regulation and therefore conservation savings attained by their customers are not attributable to the proposed regulation. Data collected from the State Water Board's May 2014 Urban Water Conservation Survey indicates that 53 of the 268 urban water suppliers who responded to the survey indicated that they had already formally invoked their drought shortage contingency plans and have implemented both mandatory restrictions on outdoor water use and prohibitions on runoff into streets and gutters. These 53 urban water suppliers represent approximately 10 million retail customers, which accounts for about 38 percent of the survey response by retail population. The State Water Board assumes that these 53 urban water suppliers are already implementing conservation measures that are commensurate with the requirements of the proposed updated emergency regulation. The State Water Board also assumes that all 268 of the survey respondents collectively are representative of the urban water conservation actions being taken at that time statewide. Based upon these assumptions, 62 percent of urban water use would continue to be affected by the State Water Board's adoption of the proposed updated

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

regulation, while 38 percent of urban water use would not be affected (i.e., they are already implementing the required conservation measures at the time the existing regulation was approved).

Various studies have analyzed the response of urban populations to mandatory use restrictions imposed during drought conditions. Multiple studies conclude that mandatory use restrictions are more effective than voluntary conservation measures because areas that have imposed mandatory use restrictions have achieved greater use reductions than areas that imposed only voluntary measures, controlling for other variables. The amount of conservation achievable through mandatory restrictions varies. Conservation savings of up to 29 percent have been observed. For example, a study conducted on the effects of water demand management policies of eight California water agencies during the period from 1989-1996, which included 3 years of drought (1989-1991), found that rationing and use restrictions were correlated with use reductions of 19 percent and 29 percent, respectively. The study's authors concluded:

In general, relatively moderate (5-15%) reductions in aggregate demand can be achieved through modest price increases and "voluntary" alternative [Demand-Side Management] policy instruments, such as public information campaigns. However, to achieve larger reductions in demand (greater than 15%), policymakers will likely need to consider either relatively large price increases, more stringent mandatory policy instruments (such as use restrictions), or a package of policy instruments.

A recent study from UCLA on use reductions in Los Angeles during the 2007-2009 drought reached similar conclusions:

Our results indicate that mandatory restrictions are most effective at reducing water consumption for [Single-Family Residential] households. The greatest impact of measures resulted from the combination of mandatory watering restrictions and the price increase, which led to a water reduction of 23% in July/August 2009, while voluntary restrictions led to only a 6% reduction in water use.

In addition, a study of Virginia's severe 2002 drought found that mandatory use restrictions, coupled with an aggressive information and enforcement campaign, led to a 22 percent reduction in use. At the time of adoption of the existing emergency regulation, the State Water Board anticipated up to a 20 percent reduction in outdoor water use, totaling 0.48 million acre-feet, as calculated below.

Total urban water use for outdoor irrigation: 3.9 MAF

Urban water use for outdoor irrigation affected by the proposed regulation: $3.9 \times 0.62 = 2.4$ MAF

Estimated conservation savings from adoption of the proposed regulation: $2.4 \times 0.2 = 0.48$ MAF

Based on data collected pursuant to the existing emergency regulation, approximately 0.37 MAF of water was actually saved between August 2014 and January 2015 as compared to the same period in 2013. This savings, however, was realized by all urban water suppliers, including those that were not required to make changes pursuant to the regulation (i.e., those that already had the same or similar requirements in place at the time the regulation was adopted). Thus, it is reasonable to attribute only approximately 62 percent of the 0.37 MAF of water savings to actions associated with the existing emergency regulation. This equates to

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

approximately 0.23 MAF of water saved through January 2015 as a result of adoption of the existing water conservation emergency regulation. The State Water Board anticipates another 0.02 to 0.1 MAF of conservation due to the existing emergency regulation through the end of March 2015.¹ This level of water savings is expected to continue during the next 270-day period that the updated regulation will be in effect. In addition, new provisions are included in the updated regulation that are expected to result in even greater savings. These new provisions include:

- Prohibiting irrigation of turf or ornamental landscapes during and 48-hours following measurable precipitation.
- Hospitality sector restrictions requiring that water only be served on request in restaurants and bars and requiring the operators of hotels and motels to offer patrons the option of not having their towels and linens washed each day of their stay.
- Requiring urban water suppliers, which do not have an existing limit on the number of days that outdoor watering is allowed, to limit outdoor irrigation of turf or ornamental landscapes to no more than two days per week.
- Requiring urban water suppliers to promptly notify their customers when they are aware of leaks within the customer's control.
- Additional reporting requirements for urban water suppliers on the number of days and duration that outdoor irrigation is allowed and the compliance and enforcement efforts being undertaken within their service areas.

Calculation of additional water savings as a result of these new requirements is not feasible for the following reasons:

- Reliable data is not available on the water savings that will be realized as result of the new hospitality sector restrictions.
- Many California restaurants and hotels already have similar restrictions in place.
- Many urban water suppliers already limit the number of days that watering is allowed and /or prohibit watering during and after precipitation.

It is therefore not possible to finely calculate the water saving resulting from new versus existing conservation actions. Given these uncertainties the State Water Board estimates that the potential water savings that could be achieved pursuant to the proposed updated emergency regulation is consistent with its original estimate of 0.48 MAF.

Additional Benefits of Proposed Regulation

The State Water Board has determined that additional benefits will be realized should it adopt the proposed updated regulation. These benefits include the following:

¹ The current emergency regulation is set to expire on April 25, 2014, but should the State Water Board adopt the proposed updated emergency regulation on March 17, 2015, it will go into effect on or about March 28, 2015, upon approval by OAL.

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

- Reduced water bills for customers that reduce water use (some of these savings will generate additional economic activity, such as investments in drought-tolerant landscaping).
- Increased water quality in receiving waters due to lower runoff volumes.
- Increased drought awareness and shared sense of responsibility among urban water users as well as out-of-state guests at California hotels, motels, restaurants and bars.
- More effective tracking of total urban water use.
- Reduced potential for severe economic disruption if 2016 is another dry year.

These benefits will offset some of the fiscal impacts to water suppliers when benefits and costs are viewed from a statewide perspective. Therefore, these benefits provide additional justification for adopting the proposed regulations.

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California Water Code, Sections 354, 10608, 10630-10634.

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

California Governor Brown State of Emergency Declaration dated January 17, 2014:
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California Governor Brown Executive Order for State Drought Actions dated April 25, 2014:
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<http://www.waterplan.water.ca.gov/cwpu2013/prd/index.cfm>, on June 29, 2014.

Informative Digest

Summary of Existing Laws and Regulations

Absent the existing emergency regulation, there is no statewide prohibition on specific water uses to promote conservation. There is also no law or regulation requiring urban water suppliers to affirmatively adopt drought shortage contingency plans, implement specific stages of their drought shortage contingency plans, or report the amount of water they produce to the state. There is also no law or regulation requiring distributors of public water supplies who are not urban water suppliers to adopt water shortage contingency plans, limit outdoor irrigation by their customers, or implement other mandatory conservation measures. The existing emergency regulation constitutes the first statewide directive to individuals and to urban water

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

suppliers to undertake specific actions to respond to the drought emergency; consequently, the proposed regulation is consistent and compatible with existing regulations on this subject. The proposed regulation neither differs from nor conflicts with an existing comparable federal statute or regulation.

Description and Effect of Proposed Regulation

The proposed emergency adoption of section 863 sets forth the State Water Resources Control Board's (State Water Board) findings of drought emergency. The proposed emergency adoption of section 864 directs individuals statewide to refrain from engaging in certain activities and contains other commercial sector restrictions to promote conservation to meet the drought emergency. The proposed emergency adoption of section 865 directs urban water suppliers to report information to the State Water Board and to take actions to promote conservation and directs all other water suppliers to take actions to promote conservation.

Proposed Emergency Regulation Section 863

Proposed section 863 sets forth the State Water Board's findings of drought emergency, noting the Governor's adoption of two emergency proclamations pertaining to drought conditions, the persistence of drought conditions, the dry nature of the preceding two years, and the likelihood that drought conditions will continue.

Proposed Emergency Regulation Section 864

Proposed section 864 prohibits several activities, except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency, to promote conservation. The section prohibits the application of water to outdoor landscapes in a manner that causes visible runoff, the use of a hose to wash an automobile except where the hose is equipped with a shut-off nozzle, the application of water to hardscapes, the use of potable water in non-recirculating ornamental fountains, and the application of potable water to outdoor landscapes during or within 48-hours after measurable rainfall. This section also prohibits serving water except when requested in restaurants and bars and requires the operators of hotels and motels to offer patrons the option of not having their towels and linens washed daily.

Proposed Emergency Regulation Section 865

Proposed section 865 directs urban water suppliers to implement the stage of their water shortage contingency plan that imposes mandatory restrictions on the number of days that outdoor irrigation is allowed, requires those urban water suppliers without adequate drought shortage contingency plans to adopt them or other measures to promote conservation within thirty days, and report monthly water production information to the State Water Board. This section also requires urban water suppliers that don't already impose a limit on the number of days that outdoor watering is allowed to limit outdoor irrigation of turf and ornamental landscapes to no more than two days per week. This section also requires urban water suppliers to notify their customers when suppliers are aware of leaks within the customer's control. The section also directs distributors of public water supplies that are not urban water

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

suppliers to either limit outdoor irrigation or implement another mandatory conservation measure or measures to achieve conservation.

Authority and Reference Citations

For Section 863

Authority: Wat. Code, § 1058.5.

References: Wat. Code, §§ 102, 104, 105.

For Section 864

Authority: Wat. Code, § 1058.5.

References: Wat. Code, §§ 102, 104, 105.

For Section 865

Authority: Wat. Code, § 1058.5.

References: Wat. Code, §§ 102, 104, 105; 350; 10617; 10632.

Mandate on Local Agencies or School Districts

The State Water Board has determined that adoption of sections X and X.1 does not impose a new mandate on local agencies or school districts. The sections are generally applicable law.

The State Water Board has further determined that adoption of section X.2 does not impose a new mandate on local agencies or school districts, because the local agencies affected by the section have the authority to levy service charges, fees, or assessments sufficient to pay for the mandate program or increased level of service. (See Gov. Code, § 17556.)

Suspension of California Environmental Quality Act

On April 24, 2014, the Governor issued an executive order addressing the drought emergency, which, among other things, suspended the California Environmental Quality Act (CEQA) as applied to the State Water Resources Control Board's adoption of emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water, to promote water recycling or water conservation, and to require curtailment of diversions when water is not available under the diverter's priority of right." On December 22, 2014, Governor Brown issued Executive Order B-28-14, which extended the suspension of CEQA and Water Code section 13247 contained in the January 17, 2014 and April 25 Proclamation through May 31, 2016. The proposed emergency regulation falls under this suspension.

Appendix ##: Public Agency and Government Fiscal Impact Analysis

Summary

Ongoing and increased urban water conservation will result in reduced water use by the customer, which in turn will result in reduced water sales and lost revenue for urban water suppliers. This loss in revenue will be a function of the amount of water conserved (and therefore not sold) and the unit price that water would have sold for. California Urban Water Supplier water rates are primarily comprised of a fixed and a variable component. The variable portion of the rate is based on the volume of water used by the customer and generally the fixed portion does not change with use. The variable portion of the rate therefore represents the unit cost of lost revenue.

In addition to lost revenue from reduced water sales, urban water suppliers will also incur costs associated with water production reporting as required by the proposed emergency regulation.

Implementation of the proposed updated emergency regulation will result in additional workload for the State Water Board and to a lesser extent for the Department of Water Resources (DWR). Based on experience implementing the existing emergency regulation, the State Water Board estimates that one additional PY (at a cost of \$127,000) will be needed to implement the updated emergency regulation. It is anticipated that any additional workload for DWR will be accomplished through redirection of existing resources.

Fiscal Impacts to Public Water Supply Agencies

Fiscal impacts to urban water agencies are assumed to result primarily from changes in water sale revenues. These are calculated below by developing a statewide average variable rate for water and multiplying it by the estimate of water sales reduction resulting from the proposed regulation.

Determination of Average Water Rates

Data was compiled from a 2013 Water Rate Survey prepared and published by Raftelis Financial Consultants, Inc. and the California-Nevada Section of the American Water Works Association to develop a statewide average estimate for the variable portion of urban water rates. The 2013 Rate Survey included information on the average fixed and variable water rates for 46 California Counties based on survey responses from 216 urban water suppliers statewide. The average rate (variable portion only) for each represented county was weighted by county population to determine a statewide average rate of \$1,086.77 per acre foot of water sold.

Estimate of Water Savings from the Proposed Emergency Regulation

According to DWR's Public Review Draft Water Plan Update 2013, total urban water use between 1998 and 2005 was 8.8 million acre-feet (MAF). Outdoor irrigation represents 44 percent of the total urban water use (3 MAF for residential landscape and 0.9 MAF for large landscapes). The portions of the proposed regulation relating to outdoor irrigation therefore

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

affect the 44 percent of statewide urban use dedicated to outdoor irrigation. The portions of the proposed regulation that require implementation of WSCPs at a mandatory level by urban water suppliers would, in some cases, entail restrictions on use by other customer classes, including residential indoor use in instances where mandatory restrictions include rationing of residential use. However, a review of the State Water Board's May 2014 survey results and a select group of WSCPs indicates that water suppliers with significant supply shortages have already implemented mandatory restrictions and are therefore already in compliance with the proposed regulation, while those that will need to invoke their WSCPs at a mandatory level to comply generally do not include restrictions on water use by the non-residential classes at the first level of mandatory restrictions. Thus, the State Water Board estimates that the proposed regulation will have a minimal impact on the 56 percent of water used for purposes other than outdoor irrigation.

At the time that the State Water Board adopted the existing water conservation emergency regulation, many California urban water suppliers were already implementing water conservation measures commensurate with those required by the existing regulation and the proposed updated regulation and therefore conservation savings attained by their customers are not attributable to the regulations. Data collected from the State Water Board's May 2014 Urban Water Conservation Survey indicates that 53 of the 268 urban water suppliers who responded to the survey indicated that they had already formally invoked their drought shortage contingency plans and have implemented both mandatory restrictions on outdoor water use and prohibitions on runoff into streets and gutters. These 53 urban water suppliers represent approximately 10 million retail customers, which accounts for about 38 percent of the survey response by retail population. The State Water Board assumes that these 53 urban water suppliers are already implementing conservation measures that are commensurate with the requirements of the proposed updated regulation. The State Water Board also assumes that all 268 of the survey respondents collectively are representative of the urban water conservation actions being taken at that time statewide. Based upon these assumptions, 62 percent of urban water use would continue to be affected by Boards adoption of the proposed updated regulation, while 38 percent of urban water use would not be required to make changes (i.e., they are already implementing the required conservation measures at the time the existing regulation was approved).

Various studies have analyzed the response of urban populations to mandatory use restrictions imposed during drought conditions. Multiple studies conclude that mandatory use restrictions are more effective than voluntary conservation measures because areas that have imposed mandatory use restrictions have achieved greater use reductions than areas that imposed only voluntary measures, controlling for other variables. The amount of conservation achievable through mandatory restrictions varies. Conservation savings of up to 29 percent have been observed. For example, a study conducted on the effects of water demand management policies of eight California water agencies during the period from 1989-1996, which included 3 years of drought (1989-1991), found that rationing and use restrictions were correlated with use reductions of 19 percent and 29 percent, respectively. The study's authors concluded:

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

In general, relatively moderate (5-15%) reductions in aggregate demand can be achieved through modest price increases and “voluntary” alternative [Demand-Side Management] policy instruments, such as public information campaigns. However, to achieve larger reductions in demand (greater than 15%), policymakers will likely need to consider either relatively large price increases, more stringent mandatory policy instruments (such as use restrictions), or a package of policy instruments.

A recent study from UCLA on use reductions in Los Angeles during the 2007-2009 drought reached similar conclusions:

Our results indicate that mandatory restrictions are most effective at reducing water consumption for [Single-Family Residential] households. The greatest impact of measures resulted from the combination of mandatory watering restrictions and the price increase, which led to a water reduction of 23% in July/August 2009, while voluntary restrictions led to only a 6% reduction in water use.

In addition, a study of Virginia’s severe 2002 drought found that mandatory use restrictions coupled with an aggressive information and enforcement campaign led to a 22 percent reduction in use. At the time of adoption of the existing emergency regulation, the State Water Board anticipated up to a 20 percent reduction in outdoor water use, totaling 0.48 million acre-feet, as calculated below.

Total urban water use for outdoor irrigation: 3.9 MAF

Urban water use for outdoor irrigation affected by the proposed regulation: $3.9 \times 0.62 = 2.4$ MAF

Estimated conservation savings from adoption of the proposed regulation: $2.4 \times 0.2 = 0.48$ MAF

Based on data collected pursuant to the existing emergency regulation, approximately 0.37 MAF of water was actually saved between August 2014 and January 2015 as compared to the same period in 2013. This savings, however, was realized by all urban water suppliers, including those that were not required to make changes pursuant to the regulation (i.e., those that already had the same or similar requirements in place at the time the regulation was adopted). Thus, it is reasonable to attribute only approximately 62 percent of the 0.37 MAF of water savings to actions associated with the existing emergency regulation. This equates to approximately 0.23 MAF of water saved through January 2015 as a result of adoption of the existing water conservation emergency regulation. The State Water Board anticipates another 0.02 to 0.1 MAF of conservation due to the existing emergency regulation through the end of March 2015.² This level of water savings is expected to continue during the next 270-day period that the updated regulation will be in effect. In addition, new provisions are included in the proposed updated regulation that are expected to result in even greater savings. These new provisions include:

- Prohibiting irrigation of turf or ornamental landscapes during and 48 hours following measurable precipitation.

² The existing emergency regulation is set to expire on April 25, 2014, but should the State Water Board adopt the proposed updated emergency regulation on March 17, 2015, it will go into effect on or about March 28, 2015 upon approval by OAL.

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

- Hospitality sector restrictions requiring that water only be served on request in restaurants and bars and requiring the operators of hotels and motels to offer patrons the option of not having their towels and linens washed each day of their stay.
- Requiring urban water suppliers that don't already have a limit on the number of days that outdoor watering is allowed to limit outdoor irrigation of turf or ornamental landscapes to no more than two days per week.
- Requiring urban water suppliers to promptly notify their customers when they are aware of leaks within the customer's control.
- Additional reporting requirements for urban water suppliers on the number of days and duration that outdoor irrigation is allowed and the compliance and enforcement efforts being undertaken within their service areas.

Calculation of additional water savings as a result of these new requirements is not feasible for the following reasons:

- Reliable data is not available on the water savings that will be realized as result of the new hospitality sector restrictions.
- Many California restaurants and hotels already have similar restrictions in place.
- Many urban water suppliers already limit the number of days that watering is allowed and /or prohibit watering during and after precipitation.

It is therefore not possible to finely calculate the water saving resulting from new versus existing conservation actions. Given these uncertainties the State Water Board estimates that the potential water savings that could be achieved pursuant to the proposed updated regulation is consistent with its original estimate of 0.48 MAF.

Reduction in Public Water Supplier Water Sales Volume

As described above, urban water use for outdoor irrigation affected by the proposed regulation is estimated to be up to 2.4 MAF per year. Urban Water suppliers in California, however, are comprised of both governmental agencies and investor owned utilities that are regulated by the California Public Utilities Commission (CPUC). Costs to investor owned utilities need not be considered for the purposes of estimating the costs of the proposed regulation on local agencies. The CPUC indicates that "there are 116 investor-owned water utilities under the CPUC's jurisdiction providing water service to about 16 percent of California's residents." The estimated 2.4 MAF per year of water used for outdoor irrigation can therefore be reduced by 16 percent for the purpose of determining the amount of conservation and corresponding revenue impact to local government resulting from adoption of the proposed regulation. This brings the total volume of outdoor irrigation water use down to approximately 2.016 MAF per year. Since the proposed regulation is estimated to achieve as much as a 20 percent reduction in water use it can be assumed that the proposed regulation could result in a reduction in water sales by local government agencies of 403,200 acre-feet per year (i.e., 20% of 2.016 MAF).

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

Calculation of Decreased Public Water Supplier Sales Revenues

The estimated decreased sales revenues are a function of the average variable water rate and the amount of decreased sales volume. The estimate of decreased sales revenues due to the proposed regulation is \$438,185,664, as calculated below.

Average statewide variable water rate: \$1,086.77 per acre-foot

Estimated conservation savings (local government portion) from proposed regulation: 403,200 acre-feet

Total revenue impact: $\$1086.77 \times 403,200 = \$438,185,664$

Note on calculation methodology

This methodology likely overstates the fiscal impact of decreased revenues for several reasons. First, it does not account for the savings in energy and chemical costs water suppliers will realize due to decreased water production. Second, it does not account for the avoided cost of supply augmentation that could be necessary if not for the conservation savings generated by the proposed regulation.

Reporting Costs

The estimated cost of reporting as would be required by the proposed emergency regulation was determined by multiplying the total number of urban water suppliers that would be required to submit monthly water production reports by the estimated average time to compile and submit water production information and by an average staff cost per hour. Based on information collected by the State Water Board pursuant to the existing emergency regulation there are 411 urban water suppliers that are subject to the reporting requirements. The maximum amount of time to prepare and submit the water production data is estimated to be 4 hours per urban water supplier per month. The estimated average total hourly staff costs of urban water supplier staff required to complete the certification form is \$65 per hour or \$260 per monthly report. If adopted, the term of the proposed emergency regulation would be 270 days or almost 9 months. Therefore, the total maximum reporting costs to urban water suppliers as a result of the proposed regulation is estimated at \$961,740 (411 urban water suppliers multiplied by the \$260 cost per monthly report multiplied by 9 months).

Total Implementation Cost

The total estimated cost of implementing the proposed regulation is \$439,147,404, which is the sum of estimated lost revenues to urban water suppliers and the estimated reporting costs as described above.

Emergency Regulations Digest (Gov. Code , § 11346.1, subd. (b))

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