Water Supplier Reliability Certification

Emergency Regulation Calculation of Supply Shortfall/Excess

Supporting Analysis and Calculations

June 2016

The Governor first declared a Drought State of Emergency in January 2014, encouraging all Californians to take personal actions to reduce water demand. In 2015, the Governor issued additional Executive Orders mandating statewide reductions in urban water use. Under the adopted regulations, the City of Redding was required to reduce its total water consumption by 36 percent for the period of June 2015 through May 2016 (compared to 2013 levels). With improved water supply conditions in Northern California this year, the State Water Board has allowed urban water suppliers to establish conservation standards based on their own local circumstances. As a result of our local Water Supply Reliability Certification, the City is no longer subject to a 36 percent savings mandate as of June 2016. Under new rules adopted by the state, last year's state-mandated conservation targets are being replaced with locally determined measures. The change reflects improved conditions in many areas, yet still requires all Californians to use water wisely, eliminate water waste, and strengthen local drought preparedness. As we transition back to our long-term water efficiency goals, please keep in mind that the State Water Board has retained statewide regulations to prohibit water waste including:

- **Hosing off sidewalks, driveways, and other hardscapes;**
- **Washing automobiles with hoses not equipped with a shut-off nozzle;**
- **Using non-recirculated water in a fountain or other decorative water feature;**
- **Watering lawns in a manner that causes runoff, or within 48 hours after measurable rainfall;**

SUPPLY RELIABILTY CERTIFICATION CRITERIA

Local water agencies are required to assess their water supply resources and determine what level of conservation is needed to ensure adequate local water supplies assuming three additional years of drought (2017, 2018, and 2019) and customer demands based on 2013 and 2014 averages.

TOTAL WATER DEMAND

The City of Redding Water Utility operates and maintains a municipal water system serving a population of more than 91,000 in the City limits and adjacent areas. The system is fully metered and customers are billed by volume of use. Residential use is about 60 percent of average annual demand. Commercial, institutional, and industrial uses represent the remaining 40 percent.

The total water demand for the 2013 water year (October 2012 through September 2013) was 28,540 acre-feet. The total water demand for the 2014 water year (October 2013 through September 2014) was 25,480 acre-feet. The average demand for 2013 and 2014 was 27,010 acre-feet. For comparison, the 2015 water year demand with mandated restrictions was 21,270 acre-feet.

TOTAL WATER SUPPLY

The City of Redding supplies its municipal water system from three primary sources:

1. Surface water is drawn from the Sacramento River and treated at the Foothill Water Treatment Plant. The Redding Contract with the United States Bureau of Reclamation (Bureau) combines pre-1914 water rights with Central Valley Project (CVP) water to equal a supply of 21,000 acre-feet per year. For emergency supply calculations due to drought, it is assumed that this supply is curtailed to 19,284 acre-feet in 2018, and 17,068 acre-feet in 2019.

2. Surface water is drawn from Whiskeytown Lake through the Spring Creek Conduit to the Buckeye Water Treatment Plant. Up to 6,140 acre-feet per year are available from this source through the City's Buckeye Contract with the Bureau. For emergency supply calculations, it is assumed that this supply is curtailed to 4,491 acre-feet in 2018, and 3,174 acre-feet in 2019.

3. Groundwater is pumped from the Redding Groundwater Basin by 16 wells, which are located primarily in the Enterprise zone. Under current operational criteria these wells can supply the City with 11,000 acre-feet per year.

Additional surface water, drawn from the Sacramento River and treated at the Foothill Water Treatment Plant, is also available from Anderson Cottonwood Irrigation District. Up to 4,000 acre-feet per year are available from this supply. For emergency supply calculations, it is assumed that this supply is reduced to 500 acre-feet per year.

TOTAL WATER SUPPLY SHORTFALL/EXCESS

Combining the water supply sources shows that the total supply estimated to be available for Water Year 2019 is 30,192 acre-feet, which exceeds the assumed annual demand of 27,010 acre-feet by 12 percent. No supply shortfall would occur during Water Year 2019.

EMERGENCY REGULATION CALCULATION OF SUPPLY SHORTFALL/EXCESS

DEMAND	**Determination of Total Potable Water Demand**			
	Potable Water Demand for 2013 (October 2012 through September 2013 Total Production)	28,540	acre-feet	
	Potable Water Demand for 2014	25,480	acre-feet	
	Total Potable Water Demand (Average of 2013 and 2014)	27,010	acre-feet	
SUPPLY	**Projected Total Potable Water Supply**	Water Year 2017	Water Year 2018	Water Year 2019
	Local Surface Water[a] (acre-ft)	27,141	23,775	20,242
	Imported Water (Purchased from Anderson Cottonwood Irrigation District - acre-ft)	500	500	500
	Groundwater (acre-ft)[b]	8,133	8,182	9,450
	Projected Total Potable Water Supply (sum of sources) (acre-ft)	35,774	32,457	30,192
STANDARD	**Calculated Shortfall/Excess**			
	Total Potable Water Demand	27,010	acre-feet	
	Projected Total Potable Water Supply in Year 3 (WY 2019)	30,192	acre-feet	
	Supply Shortfall/Excess in Year 3 (negative amount indicates surplus)	-3,182	acre-feet	
	Conservation Standard with Self Certification of Supply Reliability (negative amount indicates SURPLUS)	**-0.12**	**or**	**-12 %**

(a)	Local Surface Water from two contracts	2017	2018	2019
	CVP Buckeye 14-06-200-5272A (acre-ft)	6,141	4,491	3,174
	CVP Sacramento River 14-06-200-2871A (acre-ft)	21,000	19,284	17,068
	Total:	27,141	23,775	20,242

(b) Historic groundwater usage was employed in this analysis. However, the scheduling of contract surface water during the drought years and the time frames required by the methodology result in listing additonal groundwater in WY 2019. The well fields have a capacity in excess of 11,000 annual acre feet.

For additional information, please see the City of Redding 2015 Urban Water Management Plan:

http://www.cityofredding.org/home/showdocument?id=8963